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United States Public Health Service

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Streptomycin Therapy of P[illegible]lin-Resistant and Sulfonamide-Resistant Specific and Nonspecific Urethritis

Edwin J. Pulaski, Captain, M. C., Army of the United States [1]

The purpose of this communication is to report experiences in United States Army hospitals with streptomycin therapy of gonococcal urethritis as well as with nonspecific urethritis, epididymitis, and prostatitis. In all cases the infections had persisted despite treatment with the sulfonamides and penicillin. The data were collected through the Office of the Surgeon General.

The sulfonamides were the first drugs which were administered orally with curative effects in gonococcic infections. Their use brought under control a substantial number of cases of acute gonorrhea and relegated older therapeutic measures to the background. However, the sulfonamides left much to be desired n the treatment of gonorrhea because of the frequency of infections with resistant strains, the development of asymptomatic dangerous carrier states, and the risk of toxic phenomena. When change was made to penicillin therapy of gonococcic infections, including cases resisant to sulfonamide therapy, the results were so striking that this antibiotic has become the accepted specific for this disease.

In spite of the high percentage of ures attending penicillin therapy, cases do occur which prove refractory to it and o the sulfonamides. In addition, nononococcic infections of the genital sysem, caused by penicillin-resistant gramositive and gram-negative bacteria are ot uncommon. Hence there is need for an alternative chemotherapeutic agent or treatment of this group of patients.

The literature already records the observations of Heilman (*1*), Miller and Bohnhoff (*2*), and Mortara and Saito (*3*), on the susceptibility of Neisseria gonorrhoeae to streptomycin in vitro. These workers found the gonococcus uniformly susceptible to streptomycin in small concentrations. Miller and Bohnhoff showed that gonococci which were resistant to penicillin in vitro were susceptible to streptomycin. We have published elsewhere (*4*) data on the susceptibility to streptomycin in vitro of a large variety of gram-positive and gram-negative organisms, including Neisseria.

Streptomycin, in addition to having a potent in vitro action on the gonococcus, has the fortunate property of being rapidly excreted in the urine, following parenteral administration. Patients receiving 0.4 gm. or more of the drug every 4 hours excrete in excess of 1,000 micrograms of streptomycin per cubic centimeter of urine in 24 hours (*4, 5, 6*). Like penicillin, streptomycin is highly soluble. This property permits it to reach the infected tissues of the genitalia most readily. It would seem logical from these observations to expect as satisfactory clinical results from the use of streptomycin in gonorrheal infection as usually are obtained with penicillin. However, while the oral route could be used for penicillin treatment of gonorrhea, streptomycin should be given parenterally only. Unlike penicillin, streptomycin, when administered orally, does not produce a significant concentration in the urine; therefore oral administration cannot be depended upon for treatment of genitourinary infections.

Data regarding nine cases of gonorrheal urethritis in the male are summarized in table 1. The infection varied in duration from 3 weeks to 4 years. All patients received prior treatment with penicillin or sulfadiazine, or both, without cure. Diagnosis was established on the basis of repeated positive urethral

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This project was carried out as a part of he study being made under the direction of he Army Medical Research and Development Board, Office of The Surgeon General.

[1] Halloran General Hospital, 9960th TSU-GO, Staten Island, N. Y. Since this paper was written the author has been promoted to Major, M. C., A. U. S., and transferred to Brooke Army Medical Center, San Antonio, ex.

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TABLE 1.—*Streptomycin in gonorrhea in the male (9 cases)*[1]

Case No.	Duration	Dosage	Result
Gc-1	5 months	0.5 gm. q. 3 hr. i. m.[2] 6 doses.	Urine culture and prostatic smear 5 days after completion of treatment negative for gram-negative intra- and extracellular diplococci. No evidence of urethral discharge or urinary symptoms.
Gc-2	3 months	0.5 gm. q. 3 hr. i. m. 6 doses.	Follow-up prostatic smears at weekly intervals and a urine culture negative for gram-negative intra- and extracellular diplococci.
Gc-3	(?)	0.5 gm. q. 3 hr. i. m. 6 doses.	Follow-up prostatic smears at weekly intervals negative for gram-negative intra- and extracellular diplococci. Patient symptom free; no urethral discharge or urinary symptoms.
Gc-4	9 months	0.5 gm. q. 3 hr. i. m. 6 doses.	Prostatic smears 4 weeks after therapy negative for gram-negative intra- and extracellular diplococci. Patient symptom free; no urethral discharge or urinary symptoms.
Gc-5	3 months	0.5 gm. q. 3 hr. i. m. 6 doses.	2 prostatic smears at week intervals following treatment negative for gram-negative intra- and extracellular diplococci. Urine culture negative. Patient symptom free; no urethral discharge.
Gc-6	3 months	0.5 gm. q. 3 hr. i. m. 6 doses.	Urethral and prostatic smears negative 16 days after treatment.
Gc-7	3 weeks	0.5 gm. q. 3 hr. i. m. 4 doses.	Apparent cure 2 weeks after treatment. Gland was slightly enlarged, firm, and stripped with difficulty. Smear showed 1+ pus cells, mostly old, and no gonococci.
Gc-8	3 weeks	0.5 gm. q. 3 hr. i. m. 4 doses.	Failure. Infection remained in prostate but cleared with 5 doses of penicillin, 400,000 units each.
Gc-9	4 years	0.4 gm. q. 4 hr. i. m. 5 doses.	Smears became and remained negative, but the focus in the epididymis was not removed and a complete cure was not obtained.

[1] All received penicillin and sulfadiazine except case Gc-7, which received penicillin only.
[2] Intramuscularly.

smears, and occasionally by recovery of the organisms on culture of the pus. The importance of this latter procedure is recognized, but limited laboratory facilities did not permit routine employment. Therefore, some of these cases may possibly have been nongonococcic, but it is felt that this is unlikely. The dosage of streptomycin used in most cases was 0.5 gm. dissolved in 5 cc. of isotonic solution of sodium chloride, administered intramuscularly every 3 hours for six doses. This dosage was decided on arbitrarily, and it may be in excess of the amount of streptomycin required to control this type of infection. Additional studies will be needed to determine the minimal effective dose.

REPORT OF CASES OF GONORRHEA

Case Gc-1.—A 29-year-old white male, developed gonorrhea in December 1945. He was given two courses of penicillin, each consisting of a total of 200,000 units. After each course a diminution in the amount of discharge and relief of urinary symptoms were observed, but with exacerbation after cessation of therapy. On March 20, 1946, he was given two additional courses of penicillin, 500,000 units each. Again there was decrease in the amount of discharge and very little dysuria, but no cure. Sulfadiazine was then given in dosage of 4 gm. initially, followed by 1 gm. every 4 hours for 5 days. The patient's condition did not change materially. Streptomycin was then given, in a dosage of 0.5 gm. every 3 hours for six injections. The discharge disappeared promptly. Urinary symptoms disappeared also. Follow-up smears have been negative and there has been no recurrence of symptoms.

Case Gc-2.—A 23-year-old white male, was admitted with a penile lesion found to be darkfield-positive for Treponema pallidum. Serologic reaction subsequently was shown to be positive. In addition, the urethral smear made on admission was positive for gram-negative intracellular diplococci. The patient was given a total dosage of 2,400,000 units of penicillin for the syphilitic infection. Following this, the urethral smears were still positive. Patient then received treatment with sulfathiazole, followed by sulfadiazine, in each case in dosage of 4 gm. initially, followed by 1 gm. every 4 hours for 5 days. Smears continued to be positive. Streptomycin was then given intramuscularly, in dosage of 0.5 gm every 3 hours for six doses, with the re sult that subsequent smears and cultures iave been negative and symptoms have iot recurred.

Case Gc-3.—A 33-year-old white male, irst contracted gonorrhea in 1936. He eceived various treatments periodically, vith remissions but without cure. An xacerbation occurred in 1942, at which ime the patient was given a course of enicillin together with urethral irrigaions of potassium permanganate and a ilver salt preparation. Immediately fter this therapy, the smears became egative. However, there were subseuent recurrences, with purulent disharge. At the time of admission to the ospital, another exacerbation had ocurred and smears were positive for ram-negative intracellular diplococci. The patient was given a course of peniillin therapy, followed by a course of ulfathiazole and a few treatments with hort-wave diathermy, but these failed o eliminate the infection and smears ontinued to be positive. Patient was hen given 3 gm. of streptomycin in doses f 0.5 gm. every 3 hours for six doses, vith the result that the urethral disharge and dysuria disappeared and the mears became negative.

Case Gc-4.—A 22-year-old white male, ontracted gonorrhea in August 1945. Sulfanilamide therapy failed to cure it. Patient continued to have burning on rination and a slight thin, watery disharge. Gram-negative intracellular diplococci were seen on urethral and protatic smears. Patient had received 200,000 units of penicillin in December 1945 but the discharge persisted. An dditional course of 400,000 units and hen another course of 500,000 units were iven, but still the infection was not conrolled. A course of injections of killed yphoid bacilli, which produced high levels f fever, was also ineffective. Streptomyin therapy was begun on May 10, 1946; ix injections of 0.5 gm. each being given t 3-hour intervals. Subsequent prostatis mears and urine cultures were negative nd the patient became free of all sympoms and has remained so.

Case Gc-5.—A 25-year-old male, was infected on or about February 12, 1946. He received two courses of penicillin of 500,000 units each and one course of sulfathiazole. Subsequent smears of the urethral discharge were positive, and the dysuria and purulent discharge continued. Another course of penicillin—this time 1,000,000 units in divided doses—was given but there was no apparent change in the condition. The patient then received a total of 3 gm. of streptomycin, with the result that the urinary symptoms and discharge disappeared completely. Prostatic smears and urinary cultures became negative and remained so.

Case Gc-6.—A 20-year-old white male, was infected on March 11, 1946 and was given penicillin, 50,000 units every 3 hours for four doses. A mucoid discharge persisted and smears were again positive for intracellular diplococci on May 6. Beginning May 7, three additional courses of penicillin, together with sulfadiazine in the usual dosage, were given. The smears were positive at the conclusion of this therapy. On May 23, patient was given five intramuscular injections of 400,000 units each of penicillin. The mucoid discharge, with burrning on urination, persisted, and 3 days after cessation of therapy smears were again positive. Streptomycin, 0.5 gm. every 3 hours for six doses, was then given intramuscularly. The discharge immediately reduced to a morning drop, and the sensation of burning disappeared. Daily smears have been consistently negative. The morning discharge disappeared within 2 weeks. Examination of prostate 16 days after treatment revealed a moderately enlarged and slightly boggy gland. Microscopic examination of the secretion revealed cellular debris, a few pus cells, but no intracellular or extracellular gram-negative diplococci.

Case Gc-7.—A 23-year-old white male, became infected with gonorrhea May 19, 1946. Two consecutive courses of penicillin, 50,000 units every 3 hours for six doses each, were given but the discharge persisted and smears remained positive. On June 6, streptomycin was administered in dosage of 0.5 gm. every 3 hours for four doses. The discharge decreased during the next few days, and repeated smears have been negative. On June 21, 15 days after cessation of therapy, prostatic examination showed a slightly enlarged gland but smears were negative for gram-negative intracellular and extracellular diplococci.

Case Gc-8.—A 22-year-old white male, with recurrent gonorrhea, had been treated with various chemotherapeutic agents in 1940, 1941, 1942, 1945, and February and May 1946. Active symptoms of the current attack developed on May 24, 1946. Penicillin and sulfadiazine were given without benefit. On June 6, streptomycin was administered in doses of 0.5 gm. every 3 hours for four doses. Discharge became mucoid but persisted, and on June 9 the smears again became positive. At this time penicillin in doses of 400,000 units was given for five doses, in conjunction with prostatic massages, and subsequent smears became negative. In this instance streptomycin failed to effect a cure, presumably due to failure of the drug to reach the focus of infection in the prostate.

Case Gc-9.—The patient, a 24-year-old white male, contracted acute gonorrheal urethritis in 1942. Since that time he has had numerous recurrences and a variety of treatment including the following: Sulfonamides — sulfathiazole, sulfadiazine, sulfapyridine, all of which have produced signs of toxicity; penicillin—many courses, some of which consisted of 500,000 units (patient is now sensitive to penicillin); artificial fever—Kettering hypertherm treatment, 9 hours at about 106° F.; dilatation of urethral strictures at various other hospitals; sitz baths.

Both smear and culture confirmed the diagnosis of gonorrhea. In addition, there was demonstrated a chronic epididymitis presumably due to gonococcic infection. Patient was then placed on intramuscular injections of 0.4 gm. streptomycin every 4 hours for five doses, and received, in addition, urethral irrigations. The smears became and remained negative. However, the focus in the epididymis was not removed and a complete cure was not obtained.

Comment

Rapid disappearance of symptoms was noted in five of nine patients with gonorrhea following streptomycin therapy. These five patients had no evident prostatic extension of infection. In two of the three cases in which the prostate was enlarged and contained pus, streptomycin together with prostatic massage eliminated the coccal organisms. This treatment failed in the third case. In an additional case (Gc-9) the urethritis cleared up but an associated epididymitis failed to respond. These limited observations lead us to conclude that streptomycin is an effective chemotherapeutic agent for the treatment of gonorrheal anterior urethritis in the male. Observation of additional cases is needed to determine whether streptomycin will be effective as an adjuvant to periodic massage for the elimination of gonorrheal infections which have involved the prostate gland.

Because of the limited amounts of streptomycin available and because of its high cost, streptomycin therapy should be reserved for those patients in whom the infection has resisted the currently accepted forms of treatment.

REPORT OF CASE OF PARAMETRITIS

Case P-1.—A 25-year-old female, was admitted to the hospital on May 12, 1946 because of pain in both lower quadrants of the abdomen, fever, nausea, and vomiting. Diagnosis of parametritis was made. Positive cultures for gram-negative intracellular diplococci could not be obtained. Patient was started on penicillin and sulfonamide therapy but did not respond and continued to run a spiking temperature curve. On May 24, streptomycin was administered in doses of 0.1 gm. every 3 hours, and continued for a period of 14 days. The temperature dropped by lysis, clinical symptoms disappeared, and serial pelvic examinations revealed bilateral localization. In this patient, streptomycin apparently localized the infection but did not eradicate it.

TABLE 2.—*Streptomycin in nongonococcic urethritis and prostatitis (6 cases)*

Case No.	Diagnosis	Bacteria cultured	Dosage	Days treated	Result
U-1	Urethritis Cystitis	Staph. aureus	0.4 gm. q. 4 hr.	5	Improved. Discharge disappeared 2 days after completion of therapy.
U-2	Urethritis	A. aerogenes Staph. aureus	0.25 gm. q. 3 hr. 0.125 gm. q. 3 hr.	10 8	Good. Discharge became mucoid, then disappeared during therapy.
U-3	Urethritis Prostatitis	Gram-neg. coliform rods Staph. albus	0.2 gm. q. 4 hr.	4	Failure. Temporary diminution of discharge; less purulent in appearance. Appeared purulent again 2 days after cessation of therapy.
U-4	Urethritis Prostatitis	E. coli Staph. aureus	0.2 gm. q. 4 hr.	3	Failure. Temporary decrease in amount of discharge.
U-5	Urethritis Prostatitis	E. coli Staph. aureus	0.2 gm. q. 4 hr.	3	Failure. Temporary decrease in amount of discharge.
U-6	Urethritis Prostatitis	Strep. fecalis E. coli Staph. aureus	0.4 gm. q. 4 hr.	8	Doubtful. E. coli eliminated; other organisms persisted.

REPORT OF CASES OF NONGONOCOCCAL URETHRITIS AND PROSTATITIS

Table 2 summarizes the data regarding ix cases of nongonococcic urethritis. As s well known, the particular microrganisms present in the discharges of hese patients are rarely the sole etiologic actor of the condition. By far the maority of such infections are located in he prostate gland, and the diagnosis and ure usually depend upon proper diagosis and treatment of the underlying rostatitis. In cases U-1 and U-2, the nfection apparently was uncomplicated; the remaining cases definite prostatitis vas present. All patients had received rior penicillin and sulfonamide therapy. n cases U-3, U-4, and U-5 a previous istory of gonorrhea existed, while in ases U-1 and U-6 the etiology of the isease was not determined. In the two ases of uncomplicated urethritis (U-1 and U-2), the urethritis responded to streptomycin therapy and the patients have not shown signs of infection since. In all of the remaining four cases, in which prostatitis was a notable feature, streptomycin failed to effect cure. This is not unexpected, since our studies (*5, 6*) on prostatic secretions and assays of prostate glands removed at autopsies have failed to reveal the presence of assayable amounts of streptomycin in patients who had been given the drug parenterally.

REPORT OF CASES OF NONVENEREAL EPIDIDYMITIS

Table 3 lists 4 cases of epididymitis caused by various organisms and occurring in paraplegic patients with indwelling catheters. The administration of streptomycin intramuscularly for periods up to 10 days had no effect on the disease

TABLE 3.—*Streptomycin in epididymitis (4 cases)*

Case No.	Diagnosis	Bacteria cultured	Streptomycin dosage	Days treated	Result
E-1	Epididymitis	E. coli	0.4 gm. q. 3 hr.	10	Failure. Incision and drainage required.
E-2	Epididymitis	A. aerogenes	0.5 gm. q. 3 hr.	10	Resolution without abscess formation or sloughing.
E-3	Epididymitis	Staph. aureus	0.4 gm. q. 4 hr.	8	Failure. Epididymectomy required.
E-4	Epididymitis	Ps. aeruginosa	0.3 gm. q. 3 hr.	10	Failure. Infection progressed to suppuration and spontaneous drainage. However, urine became sterile.

process in these patients, indicating that, as with the prostate, streptomycin does not find its way into the epididymis in sufficient concentration to produce an effect on micro-organisms there.

SUMMARY AND CONCLUSIONS

1. Streptomycin has a potent in vitro activity on N. gonorrhoeae and many other gram-positive and gram-negative organisms which may infect the lower urinary tract. Given intramuscularly, this antibiotic agent is excreted in high concentration in the urine, thus permitting constant contact with organisms infecting the genitourinary system.

2. Seven cases of gonorrheal urethritis responded promptly to a course of six intramuscular injections of 0.5 gm. of streptomycin. The eighth patient, who had prostatic involvement, improved clinically but the infection was not controlled.

The ninth patient had chronic epididymitis; his smears became gram-negative but his epididymitis did not clear up, so a complete cure was not obtained. All patients had failed to respond to previous penicillin and sulfonamide therapy in dosages usually considered adequate.

3. A patient with bilateral pelvic inflammatory disease improved clinically but was not cured by a 10-day course of parenteral streptomycin therapy.

4. Streptomycin is of value in the treatment of uncomplicated nongonococcic urethritis of bacterial origin when the causative organisms are susceptible.

5. Neither parenteral nor oral administration can produce an effective concentration of streptomycin in the prostate, and this compound is therefore of no value in the treatment of prostatitis.

6. Four cases of epididymitis did not benefit from streptomycin therapy.

REFERENCES

1. Heilman, D., quoted by Waksman. S. A.; Schatz, A.: Streptomycin—Origin, nature, and properties. J. Am. Pharm. Assoc. (Scient. ed.). 34 : 273–291, 1945.

2. Miller, C. P.; Bohnhoff, M.: Streptomycin resistance of gonococci and meningococci. J. A. M. A., 130 : 485–488, 1946.

3. Mortara, F.; Saito, M. T.: Sensitivity of Neisseria gonorrhoeae to streptomycin in vitro. J. Ven. Dis. Inform., 27 : 152–154, 1946.

4. Pulaski, E. J.: Sprinz, H.: Streptomycin in surgical infections. I. Laboratory studies. Ann. Surg. (In press.)

5. Pulaski, E. J.: Streptomycin in surgical infections. II. Infections of the genitourinary tract. Ann. Surg., 124 : 392–401, 1946.

6. De Bakey, M. E.; Pulaski, E. J.: An analysis of the experience with streptomycin therapy in U. S. Army hospitals. Preliminary report. Surgery. (In press.)

A Transport Medium for Neisseria Gonorrhoeae*

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The value of the culture method as an aid in diagnosis of gonococcic infections is well established. The more widespread adoption of this method is hampered by the fastidious growth requirements of the gonococcus and the resultant need for specialized laboratory media. In recent years suitable media for primary isolation of the gonococcus have been reported. However, the lability of the organism requires plating within a few hours. A carrying or transporting medium capable of maintaining the organism in a viable state without overgrowth by contaminants during a considerable time lapse between obtaining the specimen and its arrival at the examining laboratory has been a prime need both for public health laboratories and for clinics.

A satisfactory health department laboratory gonococcus culturing service is impractical without a suitable transport medium. Such a transport medium is one into which the infectious material from the patient can be placed and held for a period of time (preferably longer than 24 hours prior to plating out on secondary culture media) and still yield results comparable to those obtained when the suspected material from the patient is streaked immediately on the culture medium. A number of transport media (*1, 2, 3*) described in the literature were studied and used but none proved satisfactory in supplying a culturing service for venereal disease clinics when a time interval of more than 4 hours elapsed between obtaining the specimen and plating it. Studies were therefore made to develop a suitable transport medium. As a result the following medium appears to be satisfactory for a 16–18-hour time period. This medium is in the developmental stage only, but results obtained are submitted in this preliminary report in the belief that they may be of interest to others engaged in the same type of research.

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*Submitted for publication June 27, 1946.

FORMULA FOR MEDIUM

Agar	0. 4 gm.
Gelatin	10. 0 gm.
Glycerin	4. 0 ml.
Distilled H_2O	100. 0 ml.
Ox serum[1]	3. 0 ml.
Egg albumin (fresh)	15. 0 ml.

pH 6.5 adjusted with 1-percent dihydrogen phosphate (KH_2PO_4), about 30 to 40 cc.

Final pH 6.5 to 6.8.

PREPARATION OF MEDIUM

The agar and gelatin are placed in cold water in a large-mouthed Erlenmeyer flask and allowed to soak for 20 minutes. The flask is placed in a double boiler and heated until the gelatin is melted. The glycerin is added and the cotton-stoppered flask is thoroughly shaken and the pH adjusted to 6.5 with about 30 ml. KH_2PO_4 solution. The mixture is autoclaved at 121° C. for 12 minutes. The flask is then removed from the autoclave and allowed to cool in a 45° C. water bath. It is important that this temperature is not exceeded when the supplements are added later.

The ox serum is prepared by obtaining ox blood from the jugular vein in a sterilized watering can with a wide spout. The blood is refrigerated overnight and the clot is cut in a crosscut fashion. Into the center of the cut is placed a sterile, heavy fluted glass funnel, with spout cut off. When amber-clear, the serum is siphoned off from inside the funnel. The serum is then filtered through a Seitz filter through which 50 ml. of a 1-percent dihydrogen phosphate solution has been previously filtered. This corrects the pH of the highly alkaline filter pad. The serum is transferred to sterile 50-ml. serum bottles, inactivated twice at 56° C. for 30 minutes, and stored at 4° C. until used.

Fresh eggs are procured. They are scrubbed with "Emulsept" and then soaked for 1 hour in "Roccal." Both of these preparations are wetting agents and disinfectants. If a stream of small bubbles arises from an egg while soaking, it should not be used because some of the disinfectant may have penetrated the shell. The larger (butt) end of the egg is opened with a sterile trephine and the albumin aseptically removed with a sterile 15- or 20-ml. pipette and placed into sterile 50-ml. bottles. Care is taken not to obtain any yolk, as this is quite toxic for the gonococcus. The egg albumin must be used immediately and should not be stored for future use, as it deteriorates. The serum and egg albumin are added to the medium at 45° C. and the mixture thoroughly shaken for several minutes. The pH should now be between 6.5 and 6.8.

Three milliliters of the medium are then aseptically placed in a suitable vial (approx. 120 x 22 mm.)[2] containing a plastic screw cap (phenolformalin free) with a well which holds the cotton swab applicator. The applicator should be long enough to reach the bottom of the vial. In this way the swab is practically imbedded in the medium. Carbon dioxide gas is then aseptically added after the agar has solidified. The caps are securely tightened. The vials are then tested for sterility, and stored at room temperature until used, preferably within 1 week. The vials should be kept upright at time of use in order to avoid excessive loss of CO_2.

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[1] Difco supplement "A"; 0.25 ml. may be used instead of ox serum.

[2] Glasco No. 7350.

COLLECTION AND STUDY OF SPECIMENS

Specimens were obtained from male and female patients after the source had been cleaned with both a dry sponge and a dry swab. Two specimens were obtained from each patient. The specimens for the first experiment, taken from 117 male and female health department clinic patients, were collected in duplicate, one on a routine swab and one on the new transport-medium swab. The routine swabs, which were placed at once in Difco semisolid starch agar, were plated within 3 hours after collection. The transport-medium swabs, however, were held in the swab vials at room temperature for a period varying from 16 to 18 hours.

The specimens for the second experiment, taken from 97 male health department clinic patients, were likewise collected in duplicate on routine and transport-medium swabs, but in this experiment the patients were in the laboratory offices at the time and the routine swabs were plated immediately. The transport-medium swabs were held in the swab vials at room temperature for a period varying from 26 to 28 hours before plating.

TABLE 1.—*Characteristics of three morphologic colony types based upon observation with a stereoscopic microscope*

Type	Size after 48 hours	Elevation	Edge	Physical structure
1	1-4 mm	Umbonate (VIII)	Undulate (XIII)	Transparent (XIX) or translucent (XX)
2	1-4 mm	Low convex (II)	Entire (X)	Transparent (XIX) or translucent (XX)
3	Pinpoint	Pulvinate (IX)	Entire (X)	Transparent (XIX)

The medium used for plating all specimens was a modified Difco proteose No. 3 agar with 2 percent hemoglobin and 0.5 ml. of Difco supplement "B." All plates were incubated at 37° C. for 48 hours in a sealed jar using a burning candle for the CO_2 source. Positive reports were based on the observation by an experienced bacteriologist of typical colonies which yielded a positive oxidase test. Atypical colonies were marked before oxidase treatment and if "oxidase-positive" were immediately picked for Gram stain and sugar fermentation. Generally, three distinct types of colonies were seen. Their characteristics are described in table 1 based upon observation with a stereoscopic microscope with a magnification of 15 diameters. The Roman numeral designations refer to the author's bacterial colony formation chart (*4*). The pin-point colonies are often unobserved until "oxidased."

RESULTS OBTAINED

The results of the first experiment are given in table 2. Specimens were obtained by the clinic physicians from 117 patients, in duplicate, and plated as described below.

TABLE 2.—*Comparison of results of routine swab platings of Neisseria gonorrhoeae within 3 hours, and transport-medium swab platings held 16 to 18 hours*

Trials	Number of platings	Results				Transport-medium	
		By routine swab plating		By transport-medium swab plating			
		+	0	+	0	Gain	Loss
1	15	9	6	11	4	2	----
2	21	15	6	18	3	3	----
3	14	6	8	6	8	----	----
4	15	10	5	10	5	----	----
5	10	4	6	3	7	----	1
6	13	7	6	7	6	----	----
7	14	8	6	8	6	----	----
8	15	6	9	7	8	1	----
Total	117	65	52	70	47	6	1

+=positive. 0=negative.

Of the 117 specimens examined by both the routine and transport methods, table 1 shows that 65 specimens (55.5 percent) ere positive by the routine plating; hile 70 specimens (59.8 percent) were sitive by the transport delayed plating. ccordingly, in this limited series the de- yed transport plating was somewhat ore efficient than the routine plating.

The second experiment differed from e first in that the specimens were from lfonamide-resistant male patients only d were obtained in the laboratory. lso, the routine swabs were plated im- ediately after collection instead of be- g held 2 to 3 hours in starch agar, hile the transport-medium swabs were ld for a greater length of time than in e first experiment, namely, 26 to 28 ours. Because of these differences in ethod, no valid comparison can be made tween the results obtained in the two periments. The results of the second udy are given in table 3. Specimens ere taken by insertion of applicators di- ctly into the urethra.

ABLE 3.—*Comparison of results of immediate platings of Neisseria gonorrhoeae and transport-medium platings held 26 to 28 hours*

Trials	Number of platings	Results				Transport-medium	
		By immediate plating		By transport-medium			
		+	0	+	0	Gain	Loss
	9	9	0	6	3	-----	3
	6	5	1	4	2	-----	1
	10	10	0	9	1	-----	1
	24	19	5	11	13	-----	8
	25	20	5	13	12	-----	7
	23	18	5	12	11	-----	6
Total	97	81	16	55	42	0	26

+=Positive 0=Negative

The results given in table 3 show that specimens (83.5 percent) were positive immediate plating, whereas 55 speci- ens (56.6 percent) were positive by the ansport-medium plating when plated after holding at room temperature for from 26 to 28 hours. This represents a loss of 26 (32.1 percent) of the positive cultures, as compared with immediate plating.

It should be pointed out that this holding or transport medium contains no peptone and therefore may be considered a static medium for the gonococcus. The medium grows only a few organisms, such as the proteus, which liquify the medium, and a very few of the genitourinary organisms. This has been evidenced by the relatively small number of plates showing excessive contamination. Many instances occur where less contamination is present in the plates from the transport-medium platings than in the immediate platings.

SUMMARY AND CONCLUSIONS

1. A new medium which serves as a static transport medium for the gonococcus has been developed for use in a gonococcus culture service. The medium was effective after a lapse of 16 to 18 hours in time between obtaining specimens and plating on conventional media.

2. This medium also prevents the growth of many contaminants which ordinarily would overgrow and prevent the isolation of the gonococcus.

REFERENCES

1. Cox, O. F.; McDermott, M.; Mueller, J. H.: Delayed planting of gonococcus cultures. Preliminary report. Ven. Dis. Inform., 23: 226–227, 1942.
   Cox, O. F.; Kinney, M. A.; Mueller, J. H.: Methods of transporting gonococci to laboratories for cultural studies. Ven. Dis. Inform., 25: 207–209, 1944.
2. Hirschberg, N.: Transportation of gonococcus specimens. South. M. J., 38: 493–497, 1945.
3. Peizer, L. R.; Steffen, G. L.: Improved method of transportation of material from gonococcal infections. J. Lab. & Clin. Med., 28: 1121–1126, 1943.
4. Buck, T. C., Jr.: A new chart descriptive of bacterial colony formations. Baltimore Health News, 21: 75–78, 1944.

Penicillin Therapy of Acute Balanitis

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United States Public Health Service

The effectiveness of penicillin therapy of Vincent's infection suggested the use of topical applications of the antibiotic in the management of the type of acute balanoposthitis which is characterized by the presence in the secretions of a variety of spirochetal organisms.

Young[4] has adequately described the form of penile inflammation the secretions from which display, in darkfield preparations, spiral forms of other than the pallida type. The clinical picture is essentially that of erosion or multiple ulcerations, moderately deep and well-defined, involving the mucous membrane of the glans, sulcus, and prepuce. The secretion may be profuse and foul smelling. The prepuce displays edema with varying degrees of phimosis. Pain may or may not be excessive.

The present report is based upon the findings in seven patients who presented the clinical manifestations described above and who were treated in a uniform manner. Darkfield examination of the secretion in each case revealed actively motile spiral forms which, as a rule, lacked the closely wound spirals and delicate fineness characterizing the spirochete of syphilis.

The identification of the various spiral forms was not attempted on account of the extreme cumbersomeness of the bacteriologic methods involved and the lack of clarity as regards the cultural and morphologic characteristics upon which original classifications were based. A study of tissue sections as a means of determining the depth of penetration of the spiral forms was not carried out. Spirochetal flora of this type are usually considered to be saprophytic in character. It is not possible to state whether the spiral forms noted in these cases had an etiologic relationship or were coincidental with the clinical entity.

The therapy consisted of the instillation into the preputial sac of 1 cc. of penicillin diluted to contain 20,000 units per cubic centimeter. By means of lateral and forward traction of the prepuce, a cup may be formed which will retain the penicillin solution in contact with the ulcerated surface. The solution was maintained within the preputial cup for about 15 minutes and discarded. The process was carried out once only.

Within 15 to 30 minutes after completion of the therapy there was noted a decline in severity of the pain. Within 24 hours no motile spirochetes could be found; there was complete relief of pain. The secretion was diminished and no longer foul smelling; the edema had begun to subside so that the foreskin could be retracted and healing of the superficial erosions was noted. Within 48 to 72 hours, or less in mild cases, healing was complete, the edema had subsided, and the glans was found to be dry.

Since the darkfield examination of secretions in this condition often reveals organisms morphologically similar to Treponema pallidum, the presence of syphilis should be ruled out by observation over a 4-month period. Two of the seven patients observed have been seen at intervals of more than 4 months posttreatment and have been found seronegative. It may be noted, though, that in the few cases of proved primary syphilis application of penicillin in the manner

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[4] Young, H. H.; Davis, D. M.: Young's Practice of Urology. W. B. Saunders, Philadelphia, 1926, vol. 2, p. 195.

escribed did not result in healing of the sions and spirochetal forms were again ound in the lesions within 48 to 72 hours.

CONCLUSIONS

Penicillin therapy appears to offer more rompt and more complete relief from idence of infection in acute balanopos- itis than may be attained by other eatment. While the cessation of symp- ms and the disappearance of the spiral ganisms are simultaneous, suggesting an etiologic relationship, no information gathered in the present study bears upon the subject.

The rapid disappearance of the organisms is an expression of the spirocheticidal power of penicillin. However, a patient having any degree of genital ulceration should be subjected to clinical and serologic scrutiny for a period of at least 4 months as a precaution against the development of an atypical and concomitantly acquired syphilis.

CURRENT LITERATURE

NOTE: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the past 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

CTA CLIN. BELGICA, BRUXELLES

La culture du gonocoque a partir des sécrétions génitales de la femme. (Culture of gonococci from genital secretions of the female.) M. Millet, R. Denolin-Reubens, J. Gaudy and J. Brenez. 1 : 44–50, Jan.–Feb., 1946.

CTA DERMAT.-VENEREOL., STOCKHOLM

*L'emploi des méthodes d'irritation pour la constatation de la guérison de la blennorragie. (The use of methods of irritation to test cure of gonorrhea.) R. Pätiälä. 26 : 557–560, May 1946.

The use of methods of irritation to st cure of gonorrhea.—Numerous clini- ans have always insisted on employing rovocation—either mechanical, chemi- l, or biologic—to ascertain cure of norrhea. Others have opposed such ethods because they considered them necessary. The author treated 198 ale patients with gonorrhea and rictly observed them during and after eatment. The treatment consisted of tablets of 0.5 gm. of a sulfathiazole eparation 6 times daily for 3 days and local injections of a protargol solu- on for the same period.

Of the 198 patients, 63 had gonococci in the urethra on the day after termination of treatment and were disregarded in this study. The remaining 135 cases were divided into 2 groups. Group A underwent distention of the urethra with a dilator up to 30 charrier for 1 to 2 minutes; in addition, 4 cc. of a 3-percent silver nitrate solution was injected into the urethra by Guyon catheter. In group B no method of irritation was employed. Patients were observed for 21 days. During that period, 20 cases of group A and 21 cases of group B remained without symptoms, whereas 48 cases of group A and 46 cases of group B showed relapses.

From his study, the author concludes that methods of irritation are unnecessary.

AM. J. PSYCHIAT., NEW YORK

Neurosyphilis. Augustus S. Rose and Harry C. Solomon. 102 : 519–520, Jan. 1946.

ARQ. BRASIL. DE OFTAL., SÃO PAULO

Ophthalmopathies of tuberculous origin. P. Filho. 5 : 101, June 1944.

BOL. ASOC. MÉD. DE PUERTO RICO, SANTURCE

Toxic effects of penicillin treatment in pregnant women. Jorge Garcia-Bird. 38: 220, June 1946.

BOLL. SOC. ITAL. DI MED. E IGIENE TROP., ERITREA

Osservazioni e ricerche sulla malattia di Nicolas-Favre (varietà genitale adenopatica inguinoilliaca). Nota prima e seconda. (Observations and investigations on lymphogranuloma inguinale.) C. d'Ignazio and E. Codeleoncini. 5: 27–77, 1945.

Forme tardive della malattia di Nicolas e Favre fra le suddite dell 'Eritrea. (Late forms of lymphogranuloma inguinale in Eritrea.) N. Cupi. 5: 163–180, 1945.

BRIT. J. VEN. DIS., LONDON

*The treatment of infective arthritis with special reference to hyperthermia. A. J. King, D. I. Williams, C. S. Nicol and J. Loudon. 22: 1–15, Mar. 1946.

The one-man clinic. R. M. J. Harper. 22: 40–42. Mar. 1946.

*Non-specific genital infections. The isolation of organisms of the pleuropneumonia group from the genital tract and their relation to the gonococcus. M. H. Salaman. 22: 47–55, June 1946.

*Venereal disease in India. E. E. Prebble. 22: 55–62, June 1946.

*Venereal disease in British West Africa. R. R. Willcox. 22: 63–76, June 1946.

The treatment of early syphilis by intensive and semi-intensive arsenotherapy. W. V. Macfarlane. 22: 77–83, June 1946.

Stricture formation following sulphonamide therapy of gonorrhea. D. T. Richards. Annotation. 22: 84–85, June 1946.

Leaflets on the treatment of venereal diseases of the early nineteenth century. A. Fessler. 22: 85–89, June 1946.

Penicillin therapy of early syphilis. Donald M. Pillsbury. Correspondence. 22: 90–91, June 1946.

The treatment of infective arthritis with special reference to hyperthermia.—The authors discuss difficulties of diagnosis in cases of presumed nonspecific arthritis and stress the importance of specialized examination and tests for the exclusion of latent gonococcic infection in such cases.

The present series consisted of 178 patients (174 men and 4 women) divided into three groups: (1) 65 patients in which gonococci were found in the secretions, (2) 48 patients in which no gonococci were found in the secretions but who had a history of gonorrhea, and (3) 65 patients with no evidence of present or past gonorrheal infection. The majority of patients with gonorrheal arthritis were in the age group 24 to 29 years, but those with nonspecific metastatic infections were in their fourth decade. There appeared to be no significant difference of involvement of particular joints in the gonococcic and nonspecific cases. Keratodermia blennorrhagica and circinate balanitis occurred in all groups but were more common in the proved gonococcic cases.

Various forms of treatment are described in detail, but absolute rest in bed is emphasized in all cases since the infection is systemic and movement may aid dissemination and precipitate further complications. Urethral irrigation with warm potassium permanganate solution is desirable as a secondary method of elimination of a recalcitrant focus of urethral infection but skillful and careful technic is required to avoid trauma to the posterior urethra. Prostatic massage, if used, should be gentle and given digitally once a week. Sulfonamides alone were found to be ineffective in the treatment of arthritis, but combined with pyretotherapy were more beneficial than treatment with hyperthermy alone.

The most desirable form of therapy was found to be pyrexia produced by intravenous vaccine. T.A.B. vaccine was given as 25,000,000 organisms intravenously followed by a further 25,000,000 after an interval of 4 hours, by which time the temperature has begun to rise due to the first injection. In this way, a relatively small dose of organisms produces a satisfactory and prolonged level of pyrexia without severe toxic effects. The temperature level varies from 102° to 104° F., and the period of pyrexia is prolonged for 4 hours or more. With the use of T.A.B. vaccine in 48 cases, the majority showed full recovery and only 4 were classed as failures.

One hundred and thirty patients were treated with hyperthermy (8 hours of ver at 106° F.) preceded by sulfona- ide administration. Relief from pain as complete in most cases and relief om muscular spasm usually immediate. he proportion of immediate successes tained in the group with gonococcal in- ction (65 percent) was greater than at of the group with a history of gon- rhea (53 percent) or of the group hav- g a nonspecific infection (51 percent).

Non-specific genital infections. The olation of organisms of the pleuro- eumonia group from the genital tract d their relation to the gonococcus.— a progress report the author dis- sses the isolation of organisms of the europneumonia group (L organisms) om inflammatory exudates of the geni- l tract of men and women. These or- nisms were commonly found in associ- ion with the gonococcus. A proportion gonococcic strains showed L-like or- nisms in their colonies. When grown the presence of penicillin, all the 80 more gonococcic strains examined owed an L-like type of growth.

Detailed results of the investigation e presented in table form. L organ- ms were cultured from the urethral dis- arge in 12 out of 35 cases of gonorrhea t in only 3 out of 45 cases of nonspe- fic urethritis, for instance. Moreover, organisms were found in cultures from e cervix, urethra, or both in 11 out of cases of gonorrhea in the female, and 39 out of 63 cases of trichomonal vag- itis. Since gonorrhea in women is of- n masked by Trichomonas vaginalis, it possible that there is an even closer sociation than is apparent between the nococcus and the L organisms.

L organisms were obtained in almost re culture from the cervix and urethra a woman with trichomonal vaginitis days after the completion of a course penicillin injections for syphilis (2,- 0,000 units during 7½ days).

In the present series, L organisms ere found in about one-third of the en and almost two-thirds of the women ith gonorrhea. It has not been possible subculture the apparently pure L-like lonies which grow at the edge of the penicillin zone on a gonococcal plate, however, and it is claimed that much more work is necessary to determine the association between gonococci and these L-like forms.

Venereal disease in India.—The author discusses venereal disease in the British Army and in the civilian population in India.

Since no real facilities exist for the treatment of venereal disease in civilians, a great proportion of prostitutes are infected, with the consequent infection of great numbers of British and Indian soldiers. While the policy in India was to place all brothels out of bounds, the facts that almost all towns and villages had varying numbers of brothels and that laws prohibiting prostitution were seldom invoked, made it virtually impossible to reduce the sources of infection.

Special treatment centers were opened throughout the India Command. Prior to November 1944, gonorrhea was treated with sulfapyridine until sulfathiazole was gradually substituted, and syphilis was treated with intravenous neoarsphenamine and intramuscular bismuth once or twice a week. Penicillin became available toward the end of 1944, and gonorrhea patients who had long been hospitalized were cured in 2 or 3 days. In general, gonorrhea patients were treated with 100,000 Oxford units of penicillin given as 10 injections of 10,000 units, or 5 injections of 20,000 units at 3-hour intervals; syphilis patients were given 2,400,000 units in 60 doses of 40,000 units every 3 hours.

During the 9 months ending in October 1945, 71,943 patients were admitted to the venereal disease treatment centers of the India Command. Syphilis was responsible for 12 percent of all admissions of British troops and for 31 percent of Indian troops. Gonorrhea was responsible for the admission of 28 percent of the British troops and for 18 percent of the Indian troops. Twenty-two percent of British and 31 percent of Indian troops were admitted for chancroid; 13.5 and 6 percent, respectively, for urethritis. The author describes in detail the deplorably unsanitary and inadequate treatment facilities available to civilians in India. In Calcutta, for example, a city of 4,000,000 people with 40,000 prostitutes, no adequqate facilities existed up until 1944. In that year, however, the Government opened seven facilities, and in these and a few other recently established clinics, results have been most gratifying.

The author recommends that free treatment centers be opened first in large cities and seaport towns, to be followed by traveling clinics for smaller towns and to be accompanied by education of the people through films, talks, and newspapers.

Venereal disease in British West Africa.—The incidence of venereal disease among Europeans in British West Africa during World War II was 2.2 percent per annum in the over-all figures for the Gambia, 4.6 percent in Sierra Leone, 8.5 percent in the Gold Coast, and about 10 percent in Nigeria. The venereal disease rates in the West African native troops were very high. In Nigeria, for example, the gonorrhea rate alone exceeded 60 percent per annum; the venereal disease rate in the Gold Coast was 50 percent per annum; in Sierra Leone, 28 percent; and in the Gambia, as low as 12 percent.

The Army on the whole was organized to give adequate treatment to its personnel, but the main difficulty was in constant reinfection of troops by infected women for whom practically no treatment facilities existed. Prior to December 1943, the standard treatment in the Army consisted, for gonorrhea, of four daily intramuscular injections of 1 gm, of sulfapyridine suspension in water. Blood sulfonamide concentration was inadequate, however, and abscesses at the site of injection were frequent. A standard oral treatment was adopted, consisting of 6 gm. of sulfathiazole given in one dose daily for 3 days by a medical officer. Cure rates between 80 and 90 percent were claimed. Sulfonamide-resistant cases were sent to the nearest military hospital for penicillin therapy which might consist of 100,000 units in a saline solution, followed 3 to 4 hours later by 100,000 units in peanut oil and beeswax.

A common treatment for civilians with syphilis was inpatient administration of neoarsphenamine until the lesion had healed; Army treatment was similar to this at first, but was later organized into a three-course arsenic and bismuth scheme. The similarities between yaws and syphilis and theories as to the origin of both diseases are discussed. Chancroid was extremely prevalent, 4.4 times as many cases of this disease being seen as cases of syphilis at the author's clinic. Most chancroid infections cleared with oral and local sulfonamide treatment during an average hospital stay of 12.5 days.

The greatest difficulty in venereal disease control in West Africa is said to be the general failure of all known methods of prophylaxis in the African. Mechanical prophylaxis, "E. T." tubes, and prophylactic centers were almost complete failures in reducing the incidence of infection. The control problem is thus gigantic, with an untreated, heavily infected female population and with a virtually complete failure of prophylaxis in the male. It is suggested that the problem will have to be tackled as an epidemic, with maps and mobile diagnostic and treatment centers operated by teams of doctors and orderlies treating the population village by village until each colony is cleared to such an extent that local hospitals can cope with the remainder of infections.

Brit. M. J., London

*Out-patient treatment of early syphilis with penicillin. A survey of 215 cases treated by single daily injections. T. R Lloyd-Jones, S. J. Allen and E. M. Donaldson. No. 4449: 567–569, Apr. 13 1946.

The syndrome known as "Reiter's disease." (A triad of polyarthritis, urethritis, an conjunctivitis.) W. P. U. Jackson. No 4466: 197–199, Aug. 10, 1946.

Reiter's disease. F. Wrigley. Medica Memoranda. No. 4466: 199, Aug. 10 1946.

Syphilis masked by penicillin. F. L. Lydon No. 4469: 311, Aug. 31, 1946.

Notification of venereal disease. Wilfri Wagland. No. 4469: 313–314, Aug. 31 1946.

Penicillin for pregnant syphilitic. Letters, Notes, and Answers. No. 4469: 317, Aug. 31, 1946.

Out-patient treatment of early syphi-
s with penicillin. A survey of 215 cases
eated by single daily injections.—This
ıper reports the condition of the 100
ıses originally treated (Lloyd-Jones and
aitland, 1945) after further observation,
ıd describes an additional series of 150
ıses treated by daily intramuscular in-
ctions. All cases have had a minimum
3 months' observation. In the latter
oup, immediate response was similar
ith all schemes of treatment, spirochetes
sappearing, lesions healing, and re-
ersal of serologic reactions occurring
ithin the same time limits. Spirochetes
sappeared from lesions in the average
me of 9 hours after single injections
ınging from 160,000 to 6,000,000 units.
erorelapse occurred in five cases, all
her relapses being of the early infec-
ous type occurring usually between 2
ıd 4 months after treatment.

Ten patients contracted syphilis at the
me they were infected with gonorrhea.
ll had been treated with pencillin for
ıe gonorrhea, one case receiving 800,000
ıits, another 300,000 units, and the re-
ıainder 150,000 units. All developed
sions within the normal incubation pe-
od of syphilis.

In addition to the above patients, 10
ıses of asymptomatic neurosyphilis
ere treated by daily injections until a
tal dosage varying from 2.4 to 5 mega
ıits had been administered. The cerebro-
inal fluids of 4 of these cases reverted
normal within 6 weeks, and although
ıe cerebrospinal fluids of the remaining
have shown definite improvement, they
ave not become normal as yet.

This system of treatment, consisting
daily injections of an aqueous solution,
based on the hypothesis that a con-
nuous level of penicillin in the blood is
ot a necessary condition for cure. In-
avenous and intramuscular routes were
ound to be equally effective, but the lat-
er are preferred on grounds of con-
enience.

BULL. SOC. PATH. EXOT., PARIS

Contribution à l'histo-pathologie de la lésion primaire d'inoculation et des lésions secondaires du pian. Chancre pianique, pianiaes, pianomes. (The histopathology of the primary and secondary lesions of yaws.) R. Montel. 37: 71–84, 1944.

Les accidents secondaires cutanés du pian: roséole, pianides, pianomes. (Secondary rashes in yaws.) R. Montel. 37: 137–145, 1944.

BULL. VEN. DIS., BOSTON

What you should know about P. O. B. 9: 1–3, July 1946.

CALIFORNIA'S HEALTH, SACRAMENTO

Syphilis treated with penicillin in hospitals and clinics. 4: 47. Sept. 30, 1946.

Out-patient rapid treatment in the San Joaquin district. 4: 55, Oct. 15, 1946.

CANAD. J. PUB. HEALTH, TORONTO

Public health nursing in the control of syphilis and gonorrhoea. 2. How the public health nurse can assist the medical officer of health. Pearl Stiver. 37: 205–206, May 1946.

Public health nursing in the control of syphilis and gonorrhoea. 4. Cases which require special attention. Pearl Stiver. 37: 292–293, July 1946.

CONNECTICUT HEALTH BULL., HARTFORD

Ten years of premarital blood test law. Henry P. Talbot. 60: 184–190, Aug. 1946.

GEORGIA'S HEALTH, HAPEVILLE

VD problem remains. 26: 2, Oct. 1946.

HEALTH BULL., NORTH CAROLINA, RALEIGH

Annual report North Carolina State board of health to conjoint session State Medical Society. 61: 1–36, June 1946.

INDIAN M. GAZ., CALCUTTA

A case of gonorrhoeal pyelonephritis. Nand Lal Bajaj. 81: 252. June–July 1946.

Venereal diseases in India. 81: 253–254, June–July 1946.

J. SOCIAL HYG., NEW YORK

The new strategy against venereal disease Thomas Parran. 32: 127–134, Mar. 1946.

The American Social Hygiene Association and World War II. A report by the Association's executive director. Walter Clarke. 32: 169–182, Mar. 1946.

* Wartime lessons in venereal disease control. Warren F. Draper. 32: 185–191, Apr. 1946.

Wartime lessons in venereal disease control.—In this Social Hygiene Day speech, Draper states that there are 3 categories of soldiers insofar as venereal disease risks are concerned: (1) those who under no circumstances will expose

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themselves, usually because of early home, school, or religious training, or family and romantic ties; (2) those who will contract venereal disease regardless of every educational effort, availability of prophylaxis, or moral influence, so long as there are infected women available; and (3) the great intermediate group whose conduct and venereal disease rate are influenced by environment, opportunity, emotional adjustment, and morale.

Among this last group, the spread of venereal disease can be materially reduced by education provided by health agencies, physicians, and through mediums of public information; suitable recreational facilities and physical fitness programs also inculcate the desire for health. Thousands of potential infections have been prevented in communities where efforts have been made to improve conditions which contribute to sex delinquency and the spread of venereal disease.

The author discusses the fear of some individuals that the virtually certain cure of gonorrhea with penicillin and the more rapid methods of treating syphilis will lead to a carelessness of attitude which will increase the dangers of becoming infected.

LANCET, LONDON

Stabilisation of penicillin solutions with phosphate. R. J. V. Pulvertaft and John Yudkin. 2: 265, Aug. 24, 1946.

M. ANN. DISTRICT OF COLUMBIA, WASHINGTON

Penicillin therapy in the practice of internal medicine and pediatrics. Georgine Rotman-Kavka, Harold L. Hirsh, Harry F. Dowling and Lewis K. Sweet. 15: 420–424, Sept. 1946.

M. J. AUSTRALIA, SYDNEY

The results of penicillin therapy in the treatment of gonorrhoea. Stefania W. Siedlecky. 1: 904–910, June 29, 1946.

Alcohol. C. C. McKellar, 2: 268–271, Aug. 24, 1946.

M. OFFICER, LONDON

The health report of Queensland 1944–45. Notes and Comments. 76: 92, Aug. 31, 1946.

Public health during six years of war. 76: 116, 120–121, Sept. 14, 1946.

Compulsory notification and treatment. 76: 145, Oct. 5, 1946.

M. REC., RUTHERFORD

A case of local reaction following the administration of penicillin in beeswax and oil. Frederick W. Lederman. 159: 540–542, Sept. 1946.

M. WOMAN'S J., CINCINNATI

Premarital blood tests. Editorial. 53: 33–34, Oct. 1946.

Army releases world-wide venereal disease figures. (New Notes, Office of the Surgeon General.) 53: 60, Oct. 1946.

MICHIGAN PUB. HEALTH, LANSING

Principal causes of death by sex and age groups, Michigan, 1945. 34: 143–152, Aug. 1946.

Michigan rapid treatment center completes second year of operation. 34: 157–159, Aug. 1946.

MIL. SURGEON, WASHINGTON

Venereal disease control in a rural area in war time. Walter B. Quisenberry and James N. Dudley. 99: 98–103, Aug. 1946.

Complications of scabies. Walter M. Libmann. 99: 116–126, Aug. 1946.

Bismuth gingivo stomatitis. Irwin Walter Scopp. 99: 196–197, Sept. 1946.

MONTHLY BULL., INDIANA STATE BD. OF HEALTH, INDIANAPOLIS

Bartholomew County v. d. clinic. Bird W. Baldwin. 49: 174, Aug. 1946.

Contact tracing. Kathryn Knell. 49: 175, Aug. 1946.

NEW YORK STATE J. MED., NEW YORK

Moral and psychologic aspects of the control of venereal disease. L. E. Luehrs. 46: 1451–1454, July 1, 1946.

Evaluation of cardiac patients for surgery. David Scherf. 46: 1915–1919, Sept. 1, 1946.

NORD. MED., GOTHENBURG

Syphilitic cervical spondylitis. H. Björk. (Finska Läkaresällskapets Handlingar) 29: 678, Mar. 29, 1946.

NOVA SCOTIA M. BULL., HALIFAX

Health services for Canadian people. Allan R. Morton. 25: 305–308, Sept. 1946.

Find venereal disease contacts. V. D. Briefs. 25: 320, Sept. 1946.

REV. D. INST. SALUB. Y ENFERM. TROP., MEXICO

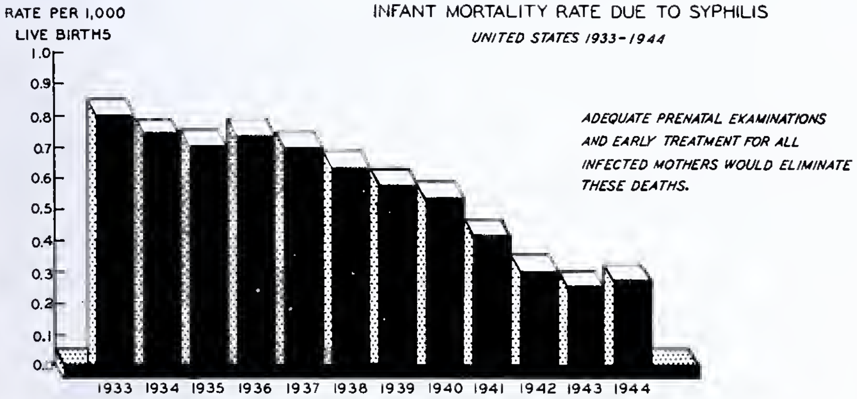
Estudios serológicos y cardiovasculares de un grupo seleccionado de enfermos de "mal del pinto." (Serological and cardiovascular studies on pinta patients.) (G. Varela. 6: 163–166, Sept. 1945.

SIGHT-SAVING REV., NEW YORK

Ophthalmia neonatorum in England 1884–1944. Arnold Sorsby. 15: 187–195, Winter 1945.

Syphilis Mortality

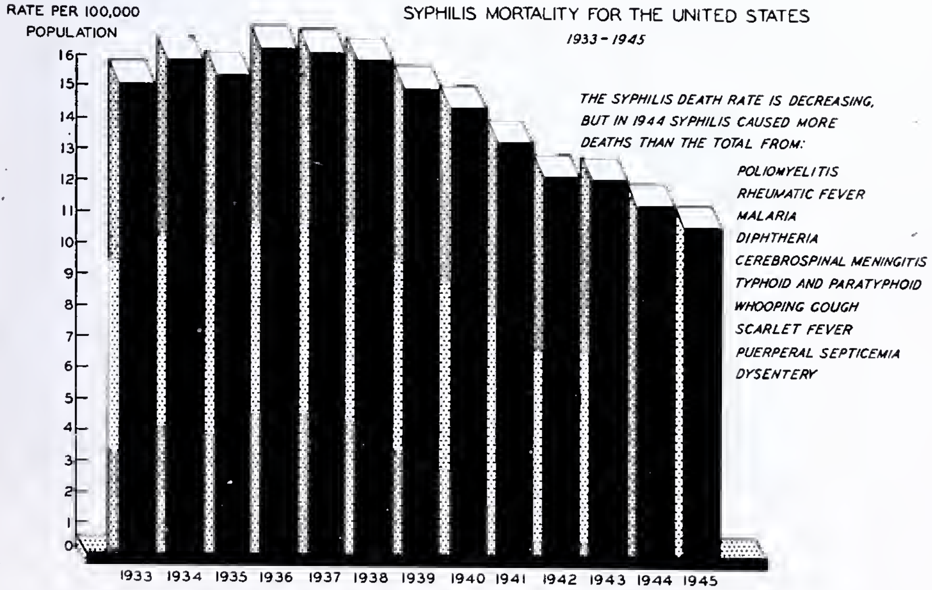
The death rate from syphilis has shown a steady decline from 1938 to date. It is t believed that in this period there has been any de-emphasis of syphilis as a use of death nor any decrease in the ability of doctors to recognize it. Rather the reverse probably true. Therefore it is believed that this decrease is a real one ich can be attributed to the Venereal Disease Control Program. The thousands cases of late syphilis treated under this program evidently have been treated to od effect. As would be expected, the decrease in infant mortality due to syphiiis s been even more pronounced.



INFANT MORTALITY RATE DUE TO SYPHILIS
UNITED STATES 1933-1944

ADEQUATE PRENATAL EXAMINATIONS AND EARLY TREATMENT FOR ALL INFECTED MOTHERS WOULD ELIMINATE THESE DEATHS.

"VITAL STATISTICS RATES IN THE UNITED STATES, 1900-1940," BUREAU OF THE CENSUS.
"VITAL STATISTICS SPECIAL REPORTS."



SYPHILIS MORTALITY FOR THE UNITED STATES
1933-1945

THE SYPHILIS DEATH RATE IS DECREASING, BUT IN 1944 SYPHILIS CAUSED MORE DEATHS THAN THE TOTAL FROM:

POLIOMYELITIS
RHEUMATIC FEVER
MALARIA
DIPHTHERIA
CEREBROSPINAL MENINGITIS
TYPHOID AND PARATYPHOID
WHOOPING COUGH
SCARLET FEVER
PUERPERAL SEPTICEMIA
DYSENTERY

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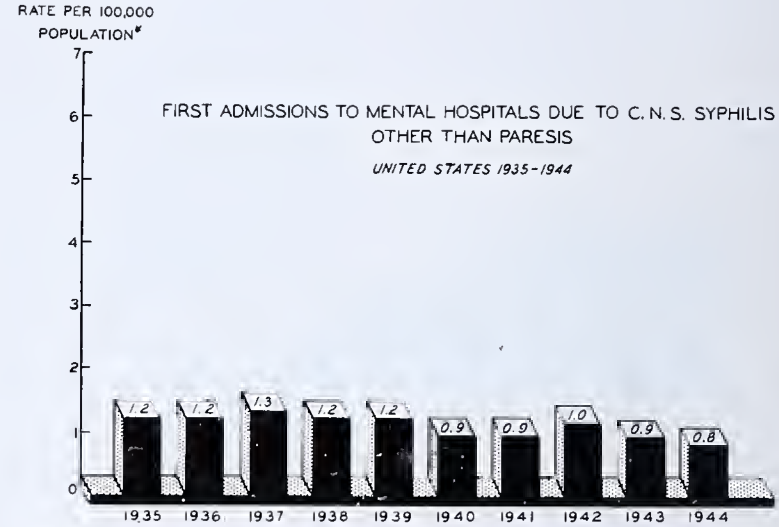
Admissions to Mental Hospitals

As an adjunct to mortality rates the admission rates to mental institutions for paresis and other psychoses due to syphilis are presented. Here the decline has been small but nevertheless definite, this in spite of an increase in the awareness of health authorities to mental disease and an increase in the total rate of admissions to mental hospitals. The proportion of syphilis admissions to total admissions decreased from 10.3 percent in 1935 to 6.9 percent in 1944.



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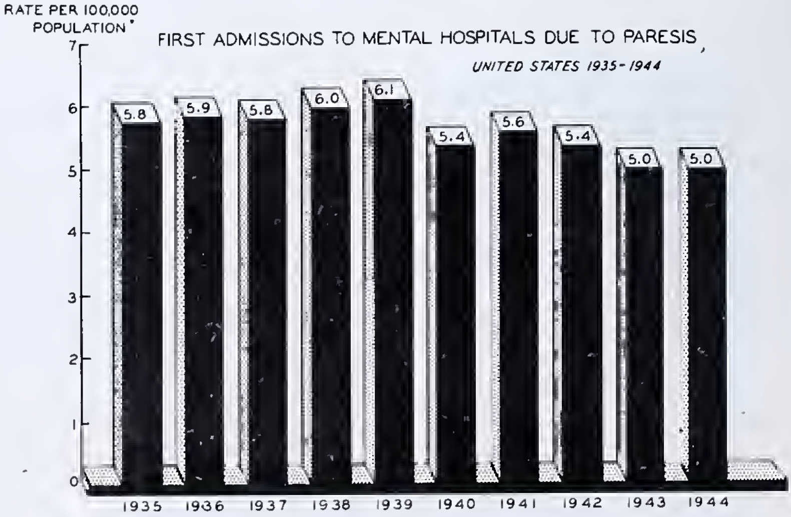

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The JOURNAL of VENEREAL DISEASE INFORMATION

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FEDERAL SECURITY AGENCY

UNITED STATES PUBLIC HEALTH SERVICE

THOMAS PARRAN, *Surgeon General*

Editor: J. R. HELLER, Jr., *Medical Director*
Chief, Venereal Disease Division

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Rapid Treatment of Early Syphilis With Penicillin in Beeswax and Oil[1]

Evan W. Thomas, M. D., Simeon Landy, M. D., and Corinne Cooper, M. D.

The treatment of early infectious syphilis with calcium penicillin in beeswax and peanut oil was started at the Rapid Treatment Center in Bellevue Hospital in August 1945. Only a few patients were treated in August, the bulk of the series having been treated since the middle of October 1945. Consequently, the present analysis must be regarded as a preliminary evaluation of the therapy, but sufficient data are now available to warrant a report.

From August 1, 1945 to July 25, 1946 a total of 802 patients with early infectious syphilis received 4,800,000 units of penicillin in beeswax and peanut oil in a period of 8 days. From August 1945 to late in February 1946 alternate patients were treated with one of two schedules of injections. One group received two injections of 300,000 units daily for 8 days. The injections were given in the morning and evening of each day about 8 hours apart. The second group received one injection of 600,000 units daily for 8 days. By February 1946 a review of the follow-up observations on patients treated by both schedules of injections failed to show any advantage in giving two treatments a day instead of one. Consequently, after that time, all patients were given a single daily dose of 600,000 units for eight injections.

Patients with primary and/or secondary syphilis only were treated with this preparation of penicillin. All had darkfield positive lesions except for a few who had serologic relapses following previous antisyphilitic treatment for early infectious syphilis. Of the 802 patients treated, 100 had had previous therapy for early syphilis following which they had been reinfected or relapsed. Of the 100 reinfections or relapses, 28 were re-treated because of reinfections or relapses following previous treatment at our center with penicillin in beeswax and peanut oil.

REACTIONS TO TREATMENT

All injections were given intramuscularly, care having been taken to aspirate after the needle had been plunged into the muscle to avoid injection into the blood stream. There was no instance of embolus following any of the injections. The vehicle of beeswax and oil was tolerated less well than was distilled water or saline, but no serious reactions were encountered.

Of the 802 patients treated, 41 (5.1 percent) had pain and induration at the site of injections only, 77 (9.6 percent) had low-grade fever usually developing on the fifth to seventh day of treatment associated with pain and induration at the site of injections, and 9 (1.1 percent) had urticaria which was also accompanied by low-grade fever. In only two cases were injections stopped before the 8-day treatment was finished. These two patients received injections for 7 days only because of the development of severe urticaria. Usually, however, when urticaria developed the patient had finished the full treatment. Several of the patients with urticaria had an associated angioneurotic edema but in no case did this last more than 5 days.

The occurrence of reactions was more frequent during the use of certain allotments of penicillin in beeswax and oil than with others, but the fact that so many patients could be treated without interruption on a busy service proved that penicillin in beeswax and oil can

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[1] From the Department of Dermatology and Syphilology, New York University College of Medicine, and the Rapid Treatment Center at Bellevue Hospital.

Aided by grants from United States Public Health Service.

be given without serious hazard to the patients. Though more troublesome to prepare and inject than aqueous solutions of penicillin, the fact that only one injection a day is required more than compensates for these minor difficulties.

EVALUATION OF TREATMENT

The status of the 802 patients at the time of this report is given in tables 1 and 2. Since these tables include data on patients treated as late as July 1946, insufficient time has elapsed for many of them to become seronegative. Nevertheless, it is of value to know the over-all picture for the entire series. The cases have been divided into four groups: (1) seronegative primary syphilis, (2) seropositive primary syphilis, (3) secondary syphilis, (4) reinfection or relapse following previous therapy for early infectious syphilis.

Section A of table 2 gives the statistical data on the patients in both groups. As indicated in table 1, all patients delinquent for more than 3 months prior to the preparation of this paper are counted as lost at the present time for follow-up purposes. A few became seronegative prior to becoming delinquent, but in computing percentages the delinquent patients are subtracted from the total number treated in each group.

Referral to table 2, section A, will show that a number of patients still have positive serologic tests 6 months or more after treatment. We believe that most of these patients should not be regarded as treatment failures. Certainly those who had quantitative Kahn tests of 8 or less should not be so classified. This opinion is based on our previous experience with rapid treatment for early syphilis where 2 to 3 years passed before some patients became completely seronegative (*1*). It has been our policy from the beginning of rapid treatment not to re-treat patients with persistently positive complement fixation titers of less than 10 or quantitative Kahn tests of 16 or less. Such patients in the past have usually become seronegative in the course of time.

One patient in the seropositive primary group had a Kahn titer of 16 nine months after treatment, and 3 patients in the group with reinfections or relapses after previous antisyphilitic therapy had Kahn titers of 16 at the sixth month after treatment.

In the group treated for secondary syphilis 4 patients had Kahn titers of

TABLE 1.—*Diagnosis of patients treated with 4,800,000 units of penicillin in beeswax and oil, and percentage with abnormal cerebrospinal fluids*

	All patients treated between August 1945 and July 30, 1946				Patients treated between August 1945 and February 20, 1946							
	600,000 units daily in 1 or 2 injections				600,000 units daily in a single injection				600,000 units daily in 2 injections of 300,000 each			
	Seronegative primary	Seropositive primary	Secondary	Re-treatment[1]	Seronegative primary	Seropositive primary	Secondary	Re-treatment	Seronegative primary	Seropositive primary	Secondary	Re-treatment
Total patients treated	63	181	458	100	26	56	174	9	17	78	142	25
Number delinquent more than 3 months	4	22	86	13	2	9	42	1	2	10	36	3
Total followed	59	159	372	87	24	47	132	8	15	68	106	22
CSF[2] at start of treatment:												
Number examined	60	171	439	96	25	55	168	8	16	75	141	16
Number abnormal	0	3	46	5	0	0	17	1	0	2	17	1
Percent abnormal	0.0	1.8	10.5	5.2	0.0	0.0	10.1	12.5	0.0	2.7	12.1	6.2

[1] The majority of these patients were treated less than 6 months prior to the time of this report.
[2] Cerebrospinal fluid.

TABLE 2.—*Results of treatment of patients with early syphilis with 4,800,000 units of penicillin in beeswax and oil (600,000 units daily for 8 days)*

. Patients treated between August 1945 and July 30, 1946. Single injection of 600,000 units or 2 injections of 300,000 units daily for 8 days

Month after treatment	Patients seronegative when last seen				Patients remaining seropositive when last seen						Patients experiencing relapse or reinfection						
	Last seen	Became negative			Last titer 16 or over			Last titer 8 or less			Became negative in indicated month, subsequently relapsed or were reinfected			Total relapsed or reinfected, month of occurrence			
	Seronegative primary	Seropositive primary	Secondary	Re-treatment	Primary	Secondary	Re-treatment	Primary	Secondary	Re-treatment	Primary	Secondary	Re-treatment	Seronegative primary	Seropositive primary	Secondary	Re-treatment
	----	19	----	1	----	----	----	----	----	----	6	----	3	----	----	----	----
	4	55	15	5	----	2	----	----	1	----	5	4	3	2	2	3	1
	2	27	48	8	----	3	1	----	5	1	2	6	1	2	8	9	5
	4	25	47	7	----	7	3	----	14	1	----	2	----	----	5	7	2
	5	2	42	5	----	4	3	----	10	4	----	3	----	----	4	11	1
	5	4	28	2	----	1	3	1	9	10	----	1	----	----	1	3	3
	11	1	14	3	----	1	----	----	8	5	----	----	----	----	----	2	----
	3	2	17	2	----	1	----	----	2	1	----	----	----	----	----	3	2
	10	1	11	1	1	1	----	----	3	2	----	----	----	----	----	1	----
	5	----	3	1	----	2	----	----	7	1	----	----	----	----	----	1	----
	6	1	3	----	----	1	----	----	8	----	----	----	----	----	----	1	----
2+	----	----	5	----	----	1	----	----	7	3	----	----	----	----	----	----	----
Number	55	137	233	35	1	24	10	1	74	28	13	16	7	4	20	41	14
Percent [1]	93. 2	86. 2	62. 6	40. 2	0. 6	6. 5	11. 5	0. 6	19. 9	32. 2	8. 2	4. 3	8. 0	6. 8	12. 6	11. 0	16. 1

. Patients treated between August 1945 and February 20, 1946. Single injections of 600,000 units daily for 8 days

	----	6	----	----	----	----	----	----	----	----	1	----	----	----	----	----	----
	----	13	2	1	----	----	----	----	----	----	----	----	----	1	----	2	----
	----	10	9	1	----	----	----	----	----	----	1	----	----	----	2	3	----
	----	8	14	----	----	----	----	----	----	----	----	----	----	----	1	4	----
	----	1	16	1	----	----	----	----	----	----	----	----	----	----	----	6	----
	----	1	8	1	----	----	----	----	1	----	----	----	----	----	1	1	----
	10	1	8	1	----	----	----	----	2	----	----	----	----	----	----	1	----
	1	----	10	1	----	1	----	----	4	----	----	----	----	----	----	1	----
	5	1	6	----	1	1	----	----	3	1	----	----	----	----	----	1	----
	6	1	2	----	----	1	----	----	6	----	----	----	----	----	----	1	----
	1	----	2	----	----	----	----	----	5	----	----	----	----	----	----	----	----
2+	----	----	5	----	----	1	----	----	5	1	----	----	----	----	----	----	----
Number	23	42	82	6	1	4	0	0	26	2	2	0	0	1	4	20	0
Percent [1]	95. 8	89. 4	62. 1	75. 0	2. 1	3. 0	0. 0	0. 0	19. 7	25. 0	4. 3	0. 0	0. 0	4. 2	8. 5	15. 2	0. 0

. Patients treated between August 1945 and February 20, 1946. Two injections of 300,000 units daily for 8 days

	----	12	----	----	----	----	----	----	----	----	3	----	3	----	----	----	----
	----	17	5	----	----	----	----	----	----	----	3	2	3	1	2	1	4
	----	11	13	1	----	----	----	----	----	----	1	2	1	----	3	4	2
	----	11	11	1	----	----	----	----	----	----	----	1	----	----	2	1	1
	----	3	12	3	----	----	----	----	----	----	----	1	----	----	3	3	3
	----	2	13	----	----	1	----	----	2	----	----	1	----	----	----	2	----
	----	1	5	----	----	----	----	----	2	----	----	----	----	----	----	2	----
	----	1	7	1	----	1	----	----	1	----	----	----	----	----	----	----	1
	5	----	5	----	----	1	----	----	1	----	----	----	----	----	----	----	----
	4	----	1	2	----	2	----	----	1	1	----	----	----	----	----	----	----
	2	----	1	1	----	1	----	----	3	1	----	----	----	----	----	1	----
2+	3	----	----	----	----	----	----	----	3	----	----	----	----	----	----	----	----
Number	14	58	73	9	0	6	0	0	13	2	7	7	7	1	10	14	11
Percent [1]	93. 3	85. 3	68. 9	40. 9	0. 0	5. 7	0. 0	0. 0	12. 3	9. 1	10. 3	6. 6	31. 8	6. 7	14. 7	13. 2	50. 0

---

[1] For totals see " Total followed," table 1.

over 16 after the sixth month of follow-up. Two were re-treated at the sixth month because of Kahn titers of 64; 2 had Kahn titers of 32 six or more months after treatment. All of these should be counted as definite treatment failures. The 2 patients with Kahn titers of 32 will be re-treated as soon as possible. One of them had increased cells and a positive Wassermann test of the spinal fluid. Eight patients had Kahn titers of 16 when last examined six or more months after treatment. They may not require further therapy, but are being kept under observation. Although we do not accept them as definite failures, their present status is in doubt and we believe they should be regarded as an indeterminate group. All patients with Kahn titers of 8 or less, six or more months after treatment, should in our opinion be regarded as having a satisfactory status at the time of this report.

Of the patients who have been followed for less than 6 months many do not yet have completely negative serologic tests for syphilis, but at the time of this report all are considered to be satisfactory except those listed as relapses or as delinquents. With a longer period of observation the percentages of failures may be expected to become higher.

RELAPSES OR REINFECTIONS

In tabulating data no distinction has been made between relapses and reinfections. In our minds there is no question that some of them are reinfections. In our opinion, probably 40 percent are actually reinfections rather than relapses. Almost certainly the 4 patients in the seronegative primary group who developed new chancres at different sites from their original lesions were reinfections. In the seropositive primary series, 13 of the 20 relapses or reinfections became seronegative before relapse or reinfection and 16 patients listed as relapses or reinfections in the group treated for secondary syphilis became seronegative prior to relapse or reinfection. That proportionately fewer patients became seronegative prior to relapse or reinfection in the secondary group than in the seropositive primary series is explained largely by the fact that patients with secondary syphilis usually require a longer time to become seronegative following treatment than do patients with seropositive primary syphilis.

The percentage of relapses or reinfections in the seropositive primary group and the group with secondary syphilis is practically identical for the same period of observation, 12.6 percent as compared with 11.0 percent. The percentage of 6.8 relapses or reinfections in the seronegative primary group is smaller than in the other three series but, as previously stated, they were probably all reinfections.

It is of interest that most relapses or reinfections in all groups occurred during the first 6 months after treatment. It frequently appeared that patients had been reinfected by sexual partners whom they had infected. This occurred in spite of educational programs designed to prevent the occurrence.

SPINAL FLUID FINDINGS

The number of patients having spinal fluid examinations at the time of treatment is given in table 1. Of the 802 patients treated, 766 had spinal fluid examinations at the time therapy was started. All of those examined in the seronegative primary group had normal spinal fluids. Only 3 of the patients examined in the seropositive primary series had abnormal findings of increased cells alone in the spinal fluid. In the series with secondary syphilis 46 of those examined had abnormal spinal fluid findings. Of these, 26 had normal spinal fluids when examined from 3 to 5 months after treatment and 17 have had no subsequent spinal fluid examinations. Of the 3 remaining patients, 1 continued to have increased cells and protein in the spinal fluid 6 months after treatment and had a blood Kahn titer of 32. This patient is one of the 2 to be re-treated because of persistently high quantitative Kahn tests. Two patients continued to have abnormal spinal fluid findings and had infectious relapses, at which time their spinal fluid Wassermann tests and colloidal gold curves were rongly positive. Two patients who had)rmal spinal fluid findings at the time ' their first treatment for secondary philis relapsed later at which time the inal fluid findings were abnormal. It is teresting that the percentage of abnoral spinal fluids in the group treated for infections or relapses after previous erapy was only 5.2 percent as compared ith 10.5 percent of the group treated for condary syphilis.

)MPARISON OF PATIENTS TREATED WITH ONE AND TWO INJECTIONS A DAY

Having given the over-all picture of all ıtients treated with penicillin in beesax and oil between August 1945 and the ıd of July 1946, we now give similar data ı patients who have had opportunity for follow-up of at least 6 months, i. e., ose treated up to February 20. This ves a better evaluation of the results of erapy because of the longer period of)servation for all patients and also perits a comparison between patients eated with one daily injection and those eated with two daily injections for 8 ıys.

The results are shown in sections B ıd C of table 2. Section B gives the ıta on patients treated with one daily jection, and section C gives similar in·rmation about those treated with two ıily injections. In these sections all ıses have been divided into four diag)stic groups as described on page 20.

The number of patients treated in each ·oup is not identical because patients ere alternated on admission if they had ırkfield positive lesions, regardless of her classification. In spite of the totals ' diagnostic groups, the comparison beveen the four groups in the two series is formative.

The differences in results of the two hedules for injecting penicillin in beesax and oil are not statistically signifiınt. Certainly the data show no advantage in giving two daily injections rather than one. With the exception of the groups treated for secondary syphilis where the percentages of relapses are almost the same (15.2 and 13.2), the single daily injection appears to have yielded better results than two injections a day. This is probably due to chance rather than to the actual superiority of one daily injection. The percentages of failures in all groups are no worse than with any other type of rapid treatment that we have used for a similar period of follow-up.

Romansky (2) has shown that a single injection of 300,000 units of calcium penicillin in beeswax and oil maintains effective levels of penicillin in the blood for about 24 hours, and continues to be excreted in the urine for approximately 3 days. If this is confirmed by subsequent investigations, there is an actual therapeutic advantage in treating syphilis with penicillin in beeswax and oil rather than with aqueous solutions because of the prolonged action of the antibiotic.

CONCLUSIONS

The treatment of early infectious syphilis with a single daily injection of 600,000 units of penicillin in beeswax and oil for 8 days has proved unusually satisfactory to date. There is no apparent advantage in giving more than one daily injection of this preparation. Possibly smaller daily doses, if continued for more than 8 days, would prove even more effective, but we have no data at present on which to base such a conclusion.

REFERENCES

1. THOMAS, E. W.: The clinical significance of quantitative serologic tests for syphilis. Am. J. Syph., Gonor. & Ven. Dis., 30: 317–329, 1946.
2. ROMANSKY, M. J.; RITTMAN, G. E.: Penicillin blood levels for 24 hours following a single intramuscular injection of calcium penicillin in beeswax and peanut oil. New England J. Med., 233: 577–582, 1945.

Prenatal Syphilis: Report of Two Families[1]

George Fein, M. D., and E. R. Ohle, M. D.

In the great majority of cases untreated maternal syphilis has a disastrous effect on one or more pregnancies. As a rule the disease becomes attenuated in the course of the mother's childbearing life, with the characteristic history of miscarriages, followed by stillbirths, neonatal deaths, and eventually healthy children who may or may not have the serologic and physical stigmata of the disease.

In these days of routine prenatal blood tests, untreated syphilis is not commonly seen over a long multiparous life. It seems, therefore, worth while to report two instances in which syphilis was passed on to several children without any apparent attenuation and without prenatal or postnatal deaths.

Case 1.—M. B., a 17-year-old Negro girl, one of seven children, was found to have a positive STS[2] in the course of a routine food-handler's examination in 1944. Members of her family were examined, and all but the father were found to be seropositive. M. B. was treated by a modified Schoch schedule in another hospital. Her family was started on treatment in the health department, received four injections each of bismuth subsalicylate at weekly intervals, before they stopped treatment because of distance from the clinic.

Two years later the family was hospitalized for rapid treatment. The original patient, M. B., was also brought to the hospital for observation, as her Kahn titer had remained unchanged at a high titer during 2 years of observation. The serologic and salient physical findings are summarized in table 1. The mother, aged 38, denied symptoms of early syphilis. She had had negative blood tests in 1939, 1941, and 1942 on routine clinic visits. She had never suffered a stillbirth or a miscarriage, and all her children had enjoyed good health. None of these had exhibited the early symptoms of prenatal syphilis. The father was not available for examination, and nothing is known of his venereal disease history.

Case 2.—E. J., a Negro woman approximately 30 years of age, was found to have a positive STS on routine prenatal examination. She denied symptoms of early syphilis; had never had a previous STS. She had been pregnant four times before, had five healthy children, all of whom were also found to have a positive STS. Her husband had a negative STS.

TABLE 1.—*Family B*

Sex	Age	Eagle flocculation titer	Cerebrospinal fluid	Physical changes (stigmata) in—		
				Teeth	Tibiae (X-ray)	Eyes
Female	38	48	Positive, grade 1			
Female	19	48	Negative	Moderate	None	None.
Female	18	8	do	Moderate	Questionable	None.
Male	16	64	do	Marked	Definite	None.
Male	14	48	do	Marked	Definite	None.
Female	12	24	do	Minimal	Definite	None.
Male	9	48	do	Marked	Definite	Corneal scar
Female	6	12	do	None	None	None.

The salient physical and serologic findings of this family are shown in table 2

None of the children showed definit congenital stigmata and the possibility o acquired syphilis cannot be excluded

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[1] These observations were made while the authors were serving with the U. S. Public Health Service at the Medical Center, Durham, N. C.

[2] Serologic test for syphilis.

TABLE 2.—*Family J*

Sex	Age	Eagle flocculation titer	Cerebrospinal fluid	Physical changes (stigmata) in—		
				Teeth	Tibiae (X-ray)	Eyes
Female	30	8	Negative			
Female	10	256	Negative	None	None	None.
Male	7	64	Positive, grade 2	None	None	None.
Male	4 } Twins	128	Positive, grade 2	None	None	None.
Female	4	128	Negative	None	None	None.
Male	3	96	Positive, grade 3	None	None	None.

However, in the light of the father's negative STS and the absence of lesions in any member of the family, the possibility of acquired syphilis seems most unlikely.

COMMENTS

In both of these families syphilis had apparently reached a fairly benign symbiotic equilibrium with the hosts, though of course it is impossible to state what the end result would have been had these patients not been brought under treatment. All these patients have been treated with penicillin and heavy metals but it is too early to judge the results.

An incidental observation was the fixed titer of the serologic test for syphilis of M. B. throughout 2 years of observation following massive arsenotherapy. We have observed this in other late prenatal syphilitics but rarely in early acquired syphilis. In some instances it may even serve as a helpful point in diagnosis between acquired and inherited syphilis. M. B. is now pregnant but no further treatment was advised despite a Kahn titer of 128 units.

Another incidental finding was the greater apparent severity of the syphilitic invasion in the male children than in the female. In family B they bore the greater number of stigmata, while in family J they had cerebrospinal fluid invasion which the girls did not, even in the instance of twins.

SUMMARY

The histories of two families are presented in which the mothers had untreated syphilis for a number of years and underwent seven and four pregnancies, respectively, all of which ended normally at term and resulted in seven and five children, respectively, all of whom were found to have prenatal syphilis.

The Herxheimer Reactions of Relatively Small Doses of Penicillin

Sidney Olansky, Senior Assistant Surgeon (R), United States Public Health Service

It has been well established that the use of relatively large initial doses of penicillin in the treatment of syphilis frequently causes Herxheimer reactions. Among patients receiving penicillin treatment for early syphilis at the Gallinger Hospital Rapid Treatment Center, more than 50 percent have had Herxheimer reactions varying in intensity from mild cutaneous reactions to febrile reactions of 105° F.

The Herxheimer reaction in patients with early syphilis is usually not a dangerous one and in many cases perhaps a favorable one, but in late cases of syphilis where lesions may be in, or close to, vital structures, such as the coronary ostia, a Herxheimer reaction might be undesirable.

In view of the above, it has been routine at this center, in cases where history of physical examination indicates that a Herxheimer reaction would be most undesirable, to treat such patients with small doses of penicillin for 24 to 48 hours in order to avoid or minimize the extent of the Herxheimer reaction.

These patients received 1,000 units of penicillin every 3 hours for 24 to 48 hours. Until recently this was thought to be an adequate safeguard. The following case reports contradict this belief.

Case 1.—B. T., white male. Diagnosis: congenital paresis. Received 1,000 units of penicillin at 12 noon. At 2 p. m. patient had a chill, and at 3 p. m. temperature was 103° F.; complained of severe headache. Temperature quickly returned to normal. Further penicillin therapy caused no difficulty.

Case 2.—A. T., Negro male. Diagnosis: secondary syphilis. Physical examination revealed harsh systolic murmur in the aortic region. Received penicillin, 1,000 units, at noon. Had a chill at 1:30 p. m., and at 2 p. m. temperature was 102.6° F. Complained of headache and weakness. Penicillin was continued in this case. Temperature rapidly subsided and there was no further difficulty.

Case 3.—H. G., white male, aged 32. Diagnosis: gumma of the testicle. This patient was thin and malnourished. Penicillin, 1,000 units, given at 12 noon. At 2 p. m. patient complained of chilliness, weakness, and malaise. Temperature at 2:30 p. m. was 104° F. The affected testicle was markedly swollen and tender. Penicillin was continued with no further reaction.

Case 4.—D. H., white female, aged 52. Diagnosis: secondary syphilis. Because of patient's age and clinical senility, it was decided to proceed slowly with penicillin. Penicillin, 1,000 units, given at 12 noon. At 2:30 temperature was 103.2° F. Patient complained of headache. Penicillin continued with no difficulty.

Case 5.—C. P., white male, aged 21. Diagnosis: secondary syphilis. Small doses of penicillin prescribed because patient had had a recent attack of rheumatic fever. Penicillin, 1,000 units, given at noon. At 3 p. m. patient had a temperature of 105° F. and was delirious for a very short interval. Temperature rapidly subsided and penicillin was continued with no further difficulty.

Case 6.—M. M., Negro female, aged 42. Diagnosis: late hypertrophic syphilides of the vulva. Penicillin, 1,000 units, given at noon. Temperature at 2:30 p. m. 102.2° F. Temperature rapidly subsided and penicillin was continued.

Fortunately in none of these cases did permanent damage result, but the possibility exists that in future cases it could.

Three of these patients had darkfield positive lesions and all became negative ithin 24 hours. The lesions showed a ery definite healing response in 24 hours.

It would seem that penicillin in any osage is not free from the possibility of Ierxheimer reaction in syphilitic pa- ents. Therefore, it would seem desir- ble to treat late latent or late sympto- iatic syphilis with bismuth before in- ituting penicillin therapy if accidents re to be avoided.

CONCLUSION

Six cases are presented in which severe Herxheimer reactions followed the injection of 1,000 units of penicillin. It is well known that such reactions may be disastrous in patients with late or complicated syphilis. Therefore penicillin, even in small doses, should not be administered to patients with late or complicated syphilis until a course of bismuth has been given.

CURRENT LITERATURE

NOTE: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the past 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

M. J. NURSING, NEW YORK

The rapid treatment center program. 1. Medical treatment. J. R. Heller, Jr. 46 : 542–543, Aug. 1946.

The rapid treatment center. 2. Nursing services. Mildred Eslick. 46 : 543–544, Aug. 1946.

M. J. PUB. HEALTH, NEW YORK

*Venereal diseases found in Selective Service registrants. Clifford H. Greve. 36 : 751–758, July 1946.

Modern treatment of syphilis. Evan W. Thomas. 36 : 1002–1006, Sept. 1946.

*Gonococcus examinations: A comparison of slides, mailed slants and immediate plates. Grace Eldering and Evelyn Palser. 36 : 1022–1026, Sept. 1946.

Venereal diseases found in Selective ervice registrants.—The author reviews ne prevalence of venereal diseases and ne rejection rates for that cause among elective Service registrants.

Examinations of more than 15 million egistrants since November 1940 reveal nat an estimated 5 percent had some orm of venereal disease at the time of hysical examination. The estimated revalence for white registrants was 2 ercent; that for Negroes 22 percent, enereal disease being the second most requent cause for rejection in this group.

Early standards of acceptance eliminated registrants with venereal disease, but changes in these standards in 1942 permitted the induction of persons with uncomplicated gonorrhea to the extent of 2 percent of registrants reporting for induction, and by March 1943 large numbers of syphilitic individuals were being inducted. In May of that year, the Navy began, for the first time, to accept persons with acute uncomplicated gonorrhea and with adequately treated syphilis. Registrants with cardiovascular, cerebrospinal, and visceral syphilis were never accepted under Selective Service regulations, however.

Following the induction of registrants with syphilis in 1943, the rejection rate for this defect began to decrease and continued to do so until by 1945 syphilis caused a negligible part of the white rejection rate. During peacetime, about 24 out of every 1,000 registrants examined were rejected for syphilis, and 7 were rejected for gonorrhea and other venereal diseases. In 1942, the rejection rate for syphilis increased to 37, while the rate for gonorrhea and other venereal diseases decreased to 4. In 1943, these rates were

15 per 1,000 and 1 per 1,000, respectively, and by 1944, they were reduced to 4 for syphilis and 0.3 for all other venereal diseases. The Negro rejection rates showed the same trend as those for white registrants, but during each yearly period they were many times greater than the rates for white registrants.

During peacetime, gonococcus infection comprised 90 percent of Negro and 97 percent of white rejections for venereal diseases other than syphilis. Negro prevalence of gonorrhea was 10 times the white prevalence and Negro prevalence of chancroid, granuloma inguinale, and lymphogranuloma venereum was 20 times the white prevalence.

Among white registrants gainfully employed, the percentage of rejections for syphilis was highest among service workers other than domestic or protective and lowest among farmers, farm laborers, and students; among Negroes, it was highest among domestic service workers and lowest among farmers and farm laborers.

Gonococcus examinations: A comparison of slides, mailed slants and immediate plates.—The authors report on a study of 902 mailed specimens for gonococcus cultures on slants of Bacto proteose No. 3 agar and hemoglobin in screw-topped tubes.

Many methods of mailing gonococcus cultures, such as the use of dry ice, thermos jugs, and specially enriched media, have been used; those giving satisfactory results are impractical for general use, however. In April 1944, therefore, a study was begun on delayed cultures on slants of coagulated blood agar, using material from the Grand Rapids Social Hygiene Clinic. Approximately 1,000 delayed specimens for gonococcus cultures were compared with slides and routine immediate cultures on plates. The proteose No. 3 agar and hemoglobin medium of Difco was dispensed in Petri plates for the immediate cultures and in slants in screw-capped tubes for the mailed specimens. Cervical, urethral, and vaginal smears were prepared on slides; for the routine cultures, swabs with exudate from the cervix and urethra were placed immediately in separate tubes containing 1 ml. of tryptose veal infusion broth. The swab was then removed from the broth and streaked on one-quarter of a "chocolate" agar plate, using one plate for each source. In the laboratory, the inoculum was spread over the remaining three-quarters of the plate from the streaked area, and the plates were incubated at 37° C. in jars with candles. After 48 hours at this temperature, plates and slants were examined for gonococcal colonies which were tested with dye for the oxidase reaction. Oxidase-positive colonies were picked, Gram-stained, and examined microscopically.

In this study, there were 132 positive findings (14.6 percent), compared with 87 (9.6 percent) positive with slides and 178 (19.7 percent) positive with immediate cultures on plates. Compared with slides, the increase in positive results with slants was 51.7 percent; with immediate plates, 104.6 percent.

Ann. et bull. de dermat., Paris

*Venereal contagiousness in various categories of women. A. Bogage. 6: 129, Mar. 1946.

Un accident rare de la médication bismuthique: Syncope, cyanose et mouvements convulsifs de la face apparus a la suite d'une injection intramusculaire de sel bismuthique oléo-soluble. (A rare accident in bismuth therapy: syncope, cyanosis, and convulsive movements of the face occurring after an intramuscular injection of oil soluble bismuth salt.) M. Lucien Périn. 6: 203–208, Apr. 1946.

Négativation des réactions sérologiques par le traitement d'attaque bismuthique au cours de la syphilis primo-secondaire. Statistique. (Reversal of sero-reactions after intensive bismuth therapy in primary and secondary syphilis. Statistical report.) M. E. Lortat-Jacob. 6: 279, May–June 1946.

Pourcentage comparé des négativations des 800 syphilis récentes traitées au Dispensiare de la Faculté, soit par l'arsenic, soit par le bismuth. (Reversal of sero-reactions in 800 cases of early syphilis treated with either arsenicals or bismuth in the Dispensary of the Faculty.) M. Burnier. 6: 280, May–June 1946.

Syphilis primo-secondaires soignées exclusivement par le bismuth. (Primary and secondary syphilis treated with bismuth exclusively.) P. Fernet and J. Guibert. 6: 280–282, May–June 1946.

Statistique concernant 310 cas de syphilis primo-secondaire traités uniquement par les injections de bismuth. (Statistical report regarding 310 cases of primary and secondary syphilis that were solely treated with bismuth injections.) J. Gaté and P. Cuilleret. 6: 282–283, May–June 1946.

Defense des arsénobensènes. (Defense of the arsphenamines.) Georges Garnier. 6: 283–284, May–June 1946.

Données comparatives sur les effets de divers traitements antisyphilitiques. (Comparison of results in various methods of antisyphilitic treatment.) F. Coste, J. Boyer and J. Nehlil. 6: 284–285, May–June 1946.

Pénicilline et leucocyto-réaction. (Réactions leucocytaires.) (Penicillin and reaction of leukocytes.) J. Gouln, Aubert, J. Moun and A. Poupinel. 6: 287, May–June 1946.

Chancre mou intra-urétral. (Intra-urethral chancroid.) Pierre Témime. 6: 289, May–June 1946.

Aspect médico-légal de la syphilis transfusionelle. (Medico-legal aspect of transfusion syphilis.) A. Tzanck. 6: 303, May–June 1946.

Contamination syphilitique pendant les dernières semaines de la grossesse (33 jours avant l'accouchement). Naissance d'un enfant présentant au bout de 80 jours des manifestations florides de syphilis héréditaire. (Syphilitic infection during the last few weeks of pregnancy—33 days prior to delivery. Birth of a child that presents active manifestations of hereditary syphilis after 80 days.) M. F. Phipps. 6: 305–306, May–June 1946.

Chancre syphilitique sur la cloison d'un vagin double. (Syphilitic chancre on the septum of a bipartite vagina.) Yves Barros. (Presented by Clément Simon.) 6: 306, May–June 1946.

Curieuse contamination syphilitique familiale. (Unusual syphilitic infection in a family.) A. Jambon. 6: 364, May–June 1946.

Curieuse contamination syphilitique familiale. (Odd syphilitic infection of a family.) E. Griveaud and J. Achard. 6: 367, May–June 1946.

Contribution a la pathogénie de la syphilis décapitée a début ganglionnaire. (Contribution to the pathogenesis of chancreless syphilis with lymphadenopathy as first manifestation.) José May. 6: 386–398, July–Aug. 1946.

Venereal contagiousness in various ategories of women.—Combined clinical xaminations, serologic examinations Wassermann), and microscopic examiations of one single smear which were lone in Paris in 1942–43 revealed conagiousness in 2 and 3 percent of the card" prostitutes and those in "houses," n 15 percent of women seized in raids y the German police, and in approxinately the same percentage of women volunteering for work in Germany. In the latter, serologic tests showed 3.5 percent syphilis against 1 percent found in the other categories. Whereas one single clinical examination suggested contagiousness in only 1 percent of women in "houses," an environment supervised with great experience, it indicated contagiousness in 6.5 percent of the women seized in raids, and in 10 percent of those volunteering for Germany. Of 100 women found to be infected with gonorrhea after 3 smears were taken at 24-hour intervals, only 58 were positive on first examination. Provocation with silver nitrate disclosed gonococci in 45 of 100 cases which were previously found negative.

Of more than 5,000 women hospitalized in Nanterre, half of whom were suspected to be contagious, clinical examination showed syphilis in only 2 percent, and gonorrhea in only 10 percent, on the whole in only 19 percent of those that were later found to have venereal diseases. On the other hand, 55 percent of those clinically suspicious did not have gonorrhea.

Bogage concludes that a reliable venereal disease control can be secured only by use of laboratory methods.

On account of the last two communications, the French Society of Dermatology and Syphilography passed a unanimous resolution that it should be consulted regarding the intended modification of the laws regulating the control of prostitution.

Ann. Inst. Pasteur, Paris

Sur les propriétés antigéniques de la réagine syphilitique. (On the antigenic properties of the syphilitic reagin.) R. Laporte J. J. Pérez and L. Hardré de Looze. 72: 678–681, July–Aug. 1946.

Arch. Dermat. & Syph., Chicago

Intrahepatic obstructive jaundice due to neoarsphenamine. Ineffectiveness of therapy. Fred L. Hartmann and Arthur G. Singer, Jr. 53: 620–624, June 1946.

*Treatment of congenital and of acquired syphilis in infants and in children by penicillin. Arthur W. Neilson, Frederick H. Cbard, W. G. Klingberg, Leland J. Hanchett, William H. Gabby, Jack Rodriquez and Carleton Watkins. 53: 625–632, June 1946.

*Optimal zone reaction in the diagnosis and treatment of syphilis. Reuben L. Kahn. 53: 633–642, June 1946.

Secondary syphilis: condyloma latum in the nostrils. Girsch D. Astrachan. (New York Academy of Medicine, Sect. of Dermatology and Syphilis, Dec. 5, 1944.) Society Transactions. 53: 655–656, June 1946.

A case for diagnosis (pityriasis-rosea-like, lichen-planus-like eruption following anti-syphilitic therapy?). Harold M. Johnson. (Hawaii Dermatological Society, Dec. 9, 1944.) Society Transactions. 53: 658–659, June 1946.

Fixed eruption (arsenic; bismuth?). Bernard L. Kahn. (Philadelphia Dermatological Society, Dec. 15, 1944.) Society Transactions. 53: 666, June 1946.

*Latent syphilis: study of one hundred and sixty-nine cases observed ten years or more. James W. Jordon and Frank A. Dolce. 54: 1–18, July 1946.

*Preservation of virulence of Treponema pallidum: some additional laboratory methods. Ernest K. Stratton. 54: 25–28, July 1946.

Keratitis, syphilitic, congenital. Leo Koretsky. (New England Dermatological Society, Dec. 13, 1944.) Society Transactions. 54: 85–86, July 1946.

Dermatitis medicamentosa (due to arsenic). Edward A. Lafreniere. (New England Dermatological Society. Dec. 13, 1944.) Society Transactions. 54: 90, July 1946.

*Etiologic consideration of keratosis blennorrhagica. Report of a case in which penicillin was used. Emory Ladany and John D. Hughes. 54: 150–178, Aug. 1946.

A yaws clinic in New Georgia. Lauren Sompayrac and Harry Spence. 54: 205–206, Aug. 1946.

Use of penicillin in the treatment of syphilis in pregnancy. H. N. Cole, Samuel Ayres, III, J. H. Barr, Tomas Genatios, B. Held, W. W. Murphy, Don R. Printz and James Strauch. 54: 255–264, Sept. 1946.

Exfoliative dermatitis due to polyvalent arsenical sensitivity. (Report of a case.) Laurence J. Underwood. 54: 330–332, Sept. 1946.

An illuminating magnifier for the reading of the rapid test for syphilis. F. Rappaport and F. Eichhorn. 54: 345–347, Sept. 1946.

Treatment of congenital and of acquired syphilis in infants and in children by penicillin.—This article discusses the treatment with penicillin of 39 syphilitic children, 11 of whom had acquired syphilis and 28 congenital syphilis. Twenty-eight patients have been followed from 2 to 16 months, 21 of whom had congenital syphilis and 7 acquired syphilis.

The total dose of penicillin has ranged from 80,000 to 300,000 units per kilogram of body weight, the majority of the children receiving an average dose of 100,000 to 125,000 units per kilogram. Time alone will decide whether the larger doses are more effective than the smaller doses hitherto used.

The total dosage was determined by two factors: (1) available penicillin, and (2) an effort to determine an effective weight-dose relationship. Experimentally, in 2 cases a 1-hour interval was resorted to; in 1 case a 2-hour interval; and in 1 case a 4-hour interval was used. In all other cases the patients were treated with a 3-hour interval between treatments. The individual dose varied from 10,000 (average) to 25,000 units. Some of the infants were given injections of 2,500 to 5,000 units to minimize the possibility of a severe Herxheimer reaction.

Seven of the patients are clinically and serologically free from syphilis. Six are clinically free from syphilis and serologically show a titer of less than four Kahn units. Ten patients have strongly positive serologic reactions, but nine of those show a declining serologic titer of the blood. These nine patients have shown clinical improvement. One patient has shown no improvement in blood serologic titer for 3 months. Four patients were lost to observation. One death occurred during penicillin therapy and a case report is presented on this.

The authors state that it is far too early to attempt any conclusive evaluation of the role of penicillin in the treatment of syphilis in children. Two tables are presented in conjunction with the article. The first table represents the serologic titer of blood of the 28 patients after treatment at monthly intervals and table 2 is a résumé of the results found in the 28 patients receiving penicillin therapy.

Optimal zone reaction in the diagnosis and treatment of syphilis.—A serologic method is presented which is intended for use in the study of known cases of syphilis and which is expected to yield more exact information concerning the behavior of such cases. It is based on increasing the number of serum-antigen ratios from the 3 employed in the standard Kahn procedure to 10 or

re. Certain cases giving negative re-
ions to the standard procedure were
nd to have strongly positive reactions
h serum-antigen ratios either greater
less than those of the standard pro-
ure. Determination of the "optimum
e" of serum-antigen ratio may be of
siderable assistance in evaluating the
ponse of the patient to therapy.

lthough experience with this procedure
limited there is some evidence that
imal precipitation occurring with ex-
s of antigen in relation to serum is
ed most frequently in late syphilis,
t optimal precipitation occurring with
ess of serum in relation to antigen is
ed most frequently in early syphilis;
l that optimum precipitation occurring
h moderate amounts of serum and an-
en such as are used in the standard
hn procedure is noted most frequently
cases of treated syphilis both early
d late. Further study of these pat-
ns in patients observed before, dur-
, and after treatment is needed before
ir significance can be reliably deter-
ned. The procedure is more compli-
ed and time-consuming than the stand-
l diagnostic methods, but the author
ls that its use is justified following
pid therapy if subsequent study con-
ms the preliminary impression that it
ovides more reliable criteria of cure.

Five tables are presented in conjunc-
n with this article, and one table out-
es the technic of the optimal zone
ocedure.

**Latent syphilis: study of one hundred
d sixty-nine cases observed ten years
more.**—This article presents data ob-
ned on 169 patients with latent syphilis
served 10 years or more, 100 of whom
re considered well treated and 69
orly treated. The group of 69 patients
nsidered poorly treated received either
treatment or less than a total of 40
jections and the group of 100 patients
nsidered well treated received 40 or
re injections of an arsenical drug and
eavy metal, either alone or in combina-
n.

The term "latent syphilis" as employed
this study means that there were no
nical signs and symptoms of syphilis at
the time of examination of the patients. The period of 10 years was decided on because it was the authors' opinion that in a syphilitic person without clinical evidence of the disease, serious complications require several years to develop and that death from such complications in less than 10 years is a remote possibility.

From their observations of the "poorly treated" group, the authors draw the following conclusions: (1) There is a decided tendency for the blood serum of persons with untreated or poorly treated latent syphilis to fluctuate over a period of years. (2) The reversal of the serologic reactions of the blood of untreated or poorly treated patients with latent syphilis to negative on single or even repeated examinations does not necessarily mean spontaneous serologic cure. (3) The serologic reactions of approximately 25 percent of untreated or poorly treated persons with latent syphilis become negative spontaneously and remain so over a period of years. (4) In 20 to 25 percent of untreated or poorly treated persons with latent syphilis belonging to mixed racial groups, including Negroes, some cardiovascular complications will develop when observations are made over a period in excess of 13 years. (5) There is a definite relationship between the state of the serum in poorly treated or untreated persons with latent syphilis over a period of years and the ultimate clinical outcome. Persistence of strongly positive serum predicts a poor clinical outcome, whereas tendency to fluctuate indicates a relatively good clinical outcome. (6) Frank early syphilis does not confer special immunity to late complications.

From the authors' observations of the "well-treated" group, they draw the following conclusions: (1) There is a decided tendency for the blood serums of persons with well-treated latent syphilis to fluctuate over a period of years. (2) Adequate antisyphilitic treatment of persons with latent syphilis results in only a 17-percent increase in long-term serologic reversals over those that occur spontaneously with little or no treatment. (3) Adequate antisyphilitic treatment reduces the hazard of late serious complications to a minimum. (4) There is no relationship between the state of the blood serum in persons with well-treated latent syphilis and the development of late complications. (5) Arsenical drugs are more efficacious in preventing late complications than heavy metals. (6) Twenty to twenty-nine injections of an arsenical are adequate therapy. This should be combined with alternating courses of a heavy metal. More than this amount does not result in any reduction of complications. (7) Forty to sixty injections, and possibly less, of a heavy metal are adequate. This should be combined with adequate arsenical therapy. Further heavy-metal therapy does not reduce the likelihood of late complications.

Preservation of virulence of Treponema pallidum: some additional laboratory methods.—The author reviews the literature and states that the experiments discussed in this article are based on the observations of Kölle and Schlossberger and Turner. The experiments consist of: (1) the direct mouse-to-mouse transfer of virulent mouse organs (without the use of an intervening host, such as the rabbit), and (2) the behavior of syphilis-infected tissue (other than rabbit testicle) in the frozen state (—78° C.).

In the first experiment brain, lymph nodes, and spleen from mice infected with syphilis were transferred directly from mouse to mouse for three transfers without an intervening host, such as the rabbit, being used. The infectivity of all organs was ascertained at each transfer through inoculations into rabbit testicle. After the first direct transfer (in which the brain and spleen as well as the lymph nodes were infectious), the lymph nodes proved to be the only one of these three organs in which virulence was maintained.

The syphilitic tissue used in the second experiment consisted of rabbit lymph nodes, mouse brain, mouse lymph nodes, and mouse spleen. These were frozen and kept at a temperature of —78° C. The infectivity of all organs was ascertained, both before and after the experiment, through inoculation into rabbit testicle. At the end of a year the rabbit lymph nodes and the mouse brain had lost their virulence. The virulence of mouse lymp nodes had been attenuated, but the i fectivity of mouse spleen had not bee impaired.

Etiologic consideration of keratos blennorrhagica. Report of a case i which penicillin was used.—An exhau tive review of the literature is made ar the authors state that to their knowled 166 cases of keratosis blennorrhagic (gonorrheal keratosis) have been r ported.

The age of the patients reported wit the disease is predominantly in the fourt decade and the male sex is mainly a fected. The mortality of keratosis ble norrhagica is approximately 10 percen The usual sequence of events is an initi chronic gonorrheal urethritis with loc complications followed by gonorrhe arthritis. Soon thereafter large areas the skin may be involved, showing lesio in different stages of evolution. The di tribution of the cutaneous lesions is sy metric, with a predilection for the extre ities, the areas around the involved join and the genital regions. Lesions hav been observed less frequently on the scal and the mucous membrances of the mout A prolonged systemic reaction ensue often ending in death.

The gonorrheal origin of the disease ha been doubted, denied, and confirmed r peatedly. The authors state that the pr ponderance of evidence points directly t a gonorrheal origin in the vast majorit of cases, although in about a score of case no evidence of gonorrheal infections ha been found. An outline is presented whic shows the numerous theories concernin the causes of keratosis blennorrhagica an lists the author or authors of each theor

The authors have found 17 (approx mately 10 percent) reports of gonococci i the cutaneous lesions in 166 cases of ker tosis blennorrhagica. If to these figure are added the cases in which gonococ have been found in nonkeratotic gono rheal lesions of the skin, then gonococ have been demonstrated in 12.2 percent o the cases of all types of gonorrheal exa themas. In contrast to this relativel high percentage, the cultures of the bloo only rarely yield gonococci, not only i pical cases of keratosis blennorrhagica it in cases of all types of systemic gonor- ieal infections. The authors have col- cted from the literature 5 reports of ses of typical keratosis in which gono- cci were cultured from the blood and 18 ports of cases of nonkeratotic gonor- ieal exanthemas in which the blood ntained gonococci. Positive cultures om joints and eyes have been reported ly occasionally.

The relationship of keratosis blen- rrhagica to arthropathic psoriasis and Reiter's disease is discussed. The au- ors state that arthropathic psoriasis ars only a superficial resemblance to ratosis blennorrhagica and that, in eir opinion, a critical analysis of many the cases in the literature reported as iter's disease does not exclude the prob- ility of a gonorrheal infection.

A lengthy review is given of theories garding the manner in which gonococci n produce such a violent infection as is en in keratosis blennorrhagica. The thors feel that the most logical explana- n appears to be that, while a bacte- mia of short duration develops, the pro- acted and grave picture of the disease due to an extreme degree of bacterial lergy to the gonococci and their endo- xins.

Various methods of treatment are de- ribed.

Finally, the authors present a case port of the disease in a 25-year-old ldier who was treated with penicillin. ey comment on the fact that the in- ction of over 5,000,000 Oxford units of nicillin neither prevented the develop- ent of the full-grown picture of kera- sis blennorrhagica nor appreciably in- enced its course.

Three tables are presented in conjunc- n with this article and an extensive ference list is given.

A. M. A., CHICAGO

- *Penicillin in the treatment of neurosyphilis. II. Dementia paralytica. Frank W. Reynolds, Charles F. Mohr and Joseph Earle Moore. 131: 1255–1260, Aug. 17, 1946.
- Commercial distribution of streptomycin to begin September 1. Washington Letter. 131: 1517, Aug. 31, 1946.
- Penicillin for syphilis in pregnancy. C. L. Chen. Correspondence. 131: 1527–1528, Aug. 31, 1946.
- Treatment of infantile congenital syphilis. Queries and minor notes. 131: 1538, Aug. 31, 1946.
- Streptomycin in the treatment of infections. A report of one thousand cases. Committee on Chemotherapeutics and Other Agents, National Research Council. Chester S. Keefer, Chairman. 132: 4–11, Sept. 7, 1946; 132: 70–77, Sept. 14, 1946.
- Increase in number of venereal diseases. Foreign letters. London. 132: 167, Sept. 21, 1946.
- Neurosyphilitic patients treated with penicillin. Probable Herxheimer reactions. Harold A. Tucker and Raymond C. V. Robinson. 132: 281–283, Oct. 5, 1946.
- The public health during six years of war. Foreign letters. London. 132: 302, Oct. 5, 1946.
- Peripheral neuritis as a complication of penicillin therapy. Lawrence C. Kolb and Seymour J. Gray. 132: 323–326, Oct. 12, 1946.
- *Penicillin in the treatment of syphilis in children. Joseph Yampolsky and Albert Heyman. 132: 368–371, Oct. 19, 1946.
- Chorioretinitis and Wassermann fastness. Queries and Minor Notes. 132: 419, Oct. 19, 1946.

Penicillin in the treatment of neurosyphilis. II. Dementia paralytica.—The treatment with penicillin of 41 dementia paralytica patients is reported.

Twenty-four of these patients, including both white and Negro individuals (group A), received penicillin alone in amounts ranging from 2.0 to 10.0 million units in divided doses; the remaining 17 white patients (group B) received from 2.0 to 4.28 million units of penicillin in divided doses concurrently with induced tertian malaria. There were no apparent differences in age, sex, and type of psychosis between the two groups. The results of those treated with penicillin alone are compared to those treated with penicillin plus malarial therapy.

Results of group A.—Penicillin alone produced at least some degree of clinical improvement in 11 of the patients (46 percent). Improvement in the spinal fluid abnormalities generally was apparent. As a rule the colloidal gold and Wassermann tests gradually improved and the spinal fluid cell count and total proteins promptly became normal. However, 3 patients still had "activity" in the

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FEDERAL SECURITY AGENCY

UNITED STATES PUBLIC HEALTH SERVICE

THOMAS PARRAN, *Surgeon General*

Editor: J. R. HELLER, Jr., *Medical Director*
Chief, Venereal Disease Division

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The Evaluation of Culture Mediums for the Routine Isolation of the Gonococcus

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The constant study of drugs for the eatment of gonococcic infections en- led this laboratory to evaluate various lture mediums for the growth of the nococcus. This paper presents studies the relative efficiency of four culture ediums for the primary isolation of the nococcus from cervical specimens. ie mediums studied were: Difco choco- te agar prepared with Bacto-proteose ptone No. 3 agar and Bacto-hemoglobin); Peizer's horse plasma-hemoglobin ar (*2*); Mueller-Hinton starch agar); and McLeod's medium (*4*) as modi- d by this laboratory. For convenience, e above mediums are designated in this port as "Difco," "Peizer," "Mueller," d "VD," respectively. These studies ere completed in 1942, but earlier pres- tation was prevented by the war. In ew of the recent publication by Weller d Williams (*5*), proper selection of lture mediums for the isolation of gono- ccus from various specimens is still nding.

EXPERIMENTAL

Female cervical specimens were se- ted as inoculum rather than male ureth- l specimens since they contain a larger d a more varied microbial flora which mplicates the isolation of the gonococ- s. Hence, the four mediums were evalu- ed under the most difficult conditions rmally encountered. Cervical speci- ns[1] were secured by the use of a sterile ton-tipped applicator. These speci- ns were placed in 12 x 75 mm. carrying tubes containing 2 ml. of peptone-salt solution (2 percent Bacto-proteose peptone No. 3 and 0.5 percent sodium chloride). For inoculation of the various mediums, the applicator was vigorously stirred in the broth, the excess fluid expressed by pressing the cotton applicator against the wall of the test tube, and the applicator finally discarded. After the culture had been adequately mixed with a 1.0-ml. pipette, each medium was inoculated with 0.05 ml. of inoculum which was properly distributed over the entire surface with an inoculating loop.

In order to reduce probable error and at the same time to avoid favoring any particular medium, the sequence of inoculation and distribution of the inoculum over the various mediums was varied continuously and indiscriminately.

The Difco medium was prepared according to the directions stated by the manufacturer on the label of the bottles. It incorporated the use of proteose peptone No. 3 agar enriched with dehydrated hemoglobin but without the addition of Supplement A. The Peizer and Mueller mediums were prepared according to the directions stated by the authors. In view of the undeniable nutritive value in the use of freshly prepared meat infusion broth as compared with desiccated preparations, a modification of the Peizer medium was formulated. This made use of McLeod's phosphate-infusion agar[2] (*4*) as a base enriched with the horse plasma-hemoglobin mixture in the same proportion as described by Peizer (*2*). A transparent medium having a more nutritive

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Specimens were obtained with the coopera- n of Dr. Anna Nimelman, Physician-in- arge, Women's House of Detention, Depart- nt of Correction, New York, N. Y.

[2] The McLeod medium was modified by using 600 gm. lean ground beef, 1 percent proteose peptone No. 3 (Difco), and 2 percent agar (instead of 1 lb. lean ground beef, 1 percent peptone, and 1.5 percent agar, respectively).

base was prepared in the following manner and will be referred to as the VD medium.

1. *Preparation of the McLeod infusion agar base:*
   - (a) To 600 gm. of lean ground beef, add the following solution which has been heated to 100° C.:
     1. Proteose peptone No. 3 (Difco) ---------- 10.0 gm.
     2. Disodium phosphate- 2.0 gm.
     3. Distilled water------ 1,000.0 ml.
   - (b) The meat is extracted in this solution for 45 minutes at 60° C. Frequent stirring is essential.
   - (c) Place in the Arnold sterilizer or autoclave and steam until the temperature of the meat is 80° to 90° C. Then continue steaming for 30 minutes.
   - (d) Cool to 45° C. and filter through two layers of cheesecloth and then through filter paper.
   - (e) Adjust the reaction to pH 7.2.
   - (f) Measure the volume and add 2.0 percent agar. Steam to dissolve the agar.
   - (g) Dispense into sterile bottles (in 75–100–150 ml. amounts), and autoclave for 10 minutes at 10 lbs. pressure. Store in refrigerator.
2. *Preparation of agar plates:*
   - (a) Melt the agar, cool to 60° C.
   - (b) Enrich with the Peizer horse plasma-hemoglobin mixture using the same proportions of enriching fluid and agar as described for the Peizer medium. Twenty-four milliliters of 0.04-percent Nile blue A, 74 percent dye content (*6*), are added to 910 ml. of the Peizer stock mixture.
   - (c) Pipette approximately 11 ml. of medium per sterile Petri dish.

All of the plates were incubated for a period of 48 hours under a 10-percent CO_2 tension at atmospheric pressure and at 35° to 36° C., after which they were examined for the gonococcus. The presence of the gonococcus was confirmed by the Gram stain, sugar fermentation reactions, and the oxidase test using p-aminodimethylaniline monohydrochloride. The detailed criteria for the gonococcus wer set forth by Carpenter (*7*) in th compilation "Diagnostic Procedures ar Reagents."

In order to evaluate the efficiency of medium, two factors were taken int consideration: (*a*) the presence or a sence of the gonococcus, and (*b*) the tot number of gonococcus colonies as ind cated by plate counts. These coloni were enumerated up to 300 colonies pe plate or expressed as too numerous t count, in which case the plates were r corded as 1+, 2+, 3+, and 4+, depen ing upon the relative amount of growth.

TABLE 1.—*A comparison of 115 positi gonococcus cultures isolated on mediums*

Medium	Total cultures	Positive		Negative	
		Number	Percent	Number	Per cen
VD	115	110	95.7	5	4
Peizer	115	100	87.0	15	13
Difco [1]	111	88	79.3	23	20
Mueller	115	73	63.5	42	36

[1] 4 Difco plates were overgrown by contaminati and were eliminated from the results.

RESULTS

It is seen from table 1 that the V medium appears to be by far the superio medium of the four compared for th primary isolation of the gonococcus whe judged by the total number of positiv plates. Peizer, Difco, and Mueller m diums, in the order named, were foun to be comparatively inferior for the cu tivation of the gonococcus.

Table 2 is a compilation showing th comparative efficiency of the four med ums assorted in combinations of pairs In this manner it was found possible t tabulate, for any single pair of mediums the presence or absence of growth of th gonococcus from the 115 specimens stud ied. An analysis of the table would ind cate that the VD medium demonstrate approximately 9 percent more positiv cultures among the total specimens ex amined than the Peizer, 17 percent mor positives than the Difco, and 32 percen ore positives than the Mueller medium. 'hen the Peizer medium was compared ith the others, it showed 7 percent more ›sitives than Difco and 23 percent more ›sitives than the Mueller medium. Difco ıowed 16 percent more positive cultures ıan the Mueller medium.

ABLE 2.—*A comparative study of 115 positive gonococcus cultures on various pairs of mediums*

Medium pairs	One positive		Both positive		Both negative		Number of plates
	Number	Percent	Number	Percent	Number	Percent	
)	14	12.2	96	83.5	1	0.9	115
izer	4	3.5					
fco [1]	24	21.6	64	57.7	17	15.3	111
ıeller	6	5.4					
)	20	18.0	87	78.4	3	2.7	111
fco [1]	1	0.9					
zer	14	12.6	82	73.9	9	8.1	111
co [1]	6	5.4					
)	38	33.0	72	62.6	4	3.5	115
ıeller	1	0.9					
zer	28	24.3	72	62.6	14	12.1	115
ıeller	1	0.9					

4 Difco plates were overgrown with contami- ing organisms in this study and were therefore ex- ded from this comparison.

In table 3 are presented results showing ə total number of gonococcic colonies əsent in 87 countable plates (i. e., each ıte containing 300 gonococcus colonies less) for each of the four mediums ıdied and the average number of colo- ›s for each medium in the 87 plates ob- 'ved. These results are based on quad- ›let inoculations, each group of four ıg from the same inoculum.

ABLE 3.—*Total counts of gonococcus colonies in 87 countable plates*

ediums employed	Total number of colonies	Number of countable plates	Average number of colonies per plate
	5,116	87	58.8
er	3,442	87	39.6
o	3,295	87	37.9
eller	891	87	10.2

Table 4 is a compilation of data obtained by tabulating the number of positive plates containing gonococcus colonies too numerous to count (more than 300 per plate) arranged according to the degree of growth, and expressed by plus signs from 1 to 4. The comparison of plates containing colonies too numerous to count represents the consensus of the three authors.

TABLE 4.—*Comparison of mediums showing plate cultures of gonococci too numerous to count*

Mediums employed	Degree of growth				Total plates
	1+	2+	3+	4+	
VD	0	0	2	25	27
Peizer	0	1	10	16	27
Difco [1]	2	5	10	8	25
Mueller	4	5	8	5	22

[1] Difco had in the series 2 countable plates (plates having 300 gonococcus colonies or less) while there were 5 Mueller plates in the series which had countable numbers.

Both tables 3 and 4 show the superiority of the VD medium over the other three mediums studied.

DISCUSSION

The VD medium described has been in use in this laboratory for over 4 years. During this time the medium has consistently produced larger colonies and more of them than any other medium observed. The tabulations given in tables 1 and 2 both indicate clearly the superiority of the VD medium to the Peizer, Difco, and Mueller mediums. It is felt that, although the VD medium is somewhat more complicated in its preparation than the Peizer preparation, the greater efficiency obtained with the former warrants its use. Our findings agree with those of Weller and Williams (*5*) in that the Peizer medium is superior to Difco and Mueller mediums for the primary isolation of the gonococcus.

It also should be pointed out that there are strains of gonococcus which will grow readily on one medium but will show inferior or no growth on another medium. However, the inoculation of two plates of the same medium with the same specimen will give a larger number of positive cultures than if one plate were to be used for each specimen.

SUMMARY

1. One hundred and fifteen cervical specimens were studied with respect to the comparative efficiency in the primary isolation of the gonococcus on four culture mediums.

2. The culture mediums studied were: Peizer's plasma-hemoglobin agar, Mueller starch agar, Bacto-proteose peptone No. 3 Bacto-hemoglobin agar, and a modified McLeod phosphate infusion agar.

3. The modified McLeod plasma-hemoglobin agar gave the best results under the conditions of the study. Peizer, Difco, and the Mueller starch agars, in the order named, were found to be less favorable for the growth of the gonococcus.

REFERENCES

1. Sulkin, S. E.; Gottlieb, E.: The use of an improved culture medium in the diagnosis of gonococcal infection in the adult female. Am. J. Syph., Gonor. & Ven. Dis., 25: 22–27, 1941.
2. Peizer, L. R.; Steffen, G. I.: A modi cation of the horse plasma hemoglobi agar for primary culture of the gon coccus. Usefulness of Nile blue A this medium. Ven. Dis. Inforn 23: 224–226, 1942.
3. Mueller, J. H.; Hinton, J.: A protei free medium for primary isolation the gonococcus and meningococcu Proc. Soc. Exper. Biol. & Med., 48: 33 333, 1941.
4. McLeod, J. W.; Coates, J. C.; Happol F. C.; Priestley, D. P.; Wheatle B.: Cultivation of the gonococcus as method in the diagnosis of gonorrh with special reference to the oxyda reaction and to the value of air rei forced in its carbon dioxide conten J. Path. & Bact., 39: 221–231, 1934.
5. Weller, T. H.; Williams, J. E.: Compar tive study of media for the prima isolation of the gonococcus. Am. Syph., Gonor. & Ven. Dis., 30: 386–39 1946.
6. Gardner, L. W.: Nile blue A medium f the culture of the gonococcus. Am. Syph., Gonor. & Ven. Dis., 24: 737–74 1940.
7. Carpenter, C. M.: The gonococcus. Diagnostic Procedures and Reagent 1st ed. American Public Health Ass ciation, Standard Methods Committ on Diagnostic Procedure and Reagent New York, 1941. Pp. 85–111.

Observation on the Direct Oxidase Test as Applied to Gonococcic Colonies Grown in Certain Mediums

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A survey of the literature dealing with the use of the direct oxidase test as an aid in the identification of the gonococcus indicates that there are variable factors which may influence the reaction. Pitts (*1*), using a testicular infusion-hydrocele agar for the isolation of the gonococcus, concludes that ". . . gram-negative diplococci are found occasionally which, at least on primary culture, are oxidase-negative, although they are typical gonococci both morphologically and in thei fermentative reactions." Weckstein (*2* used a two-plate method for the primar isolation and identification of the gon coccus. He states that "Neisseriae whic ferment 1-percent carbohydrates produ ing typical lavender colonies after 4 hour incubation may not give a positiv oxydase test."

In the course of experimental wor with culture mediums containing variou nutritive materials for the growth of th gonococcus, it was noticed that the rat at which and extent to which the oxidas test became positive varied considerabl

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uffer and Hill (*3*) used a meat-free
ystine chocolate blood agar for the iso-
tion of the gonococcus. In the course
f comparing the efficiency of this with
ther mediums for the primary isolation
f the gonococcus, it was noticed that the
xidase test was not always typical on
onococcic colonies growing in the Huffer-
ill medium. Accordingly, variations in
ie composition of the mediums were
ade in an effort to study the conditions
nderlying atypical oxidase reactions.

EXPERIMENTAL

The oxidase reaction produced by gono-
ccus colonies grown on the Huffer-Hill
edium (pH 7.5) was compared with the
action of those grown on a modified
cLeod horse plasma-hemoglobin agar
). In subsequent experimental studies,
constant basic medium was employed to
hich were added various substances.
he base medium employed contained 2
rcent Bacto-proteose peptone No. 3, 1.6
rcent Bacto agar, and 0.5 percent so-
um chloride if the medium did not con-
in phosphate salts, or 0.32 percent so-
um chloride if the medium contained
osphate salts. To this base medium
e following substances were added:

Medium A: 7.5 percent horse serum.

Medium B: 7.5 percent horse serum and
0 percent glucose.

Medium C: 7.5 percent horse serum and
5 percent final concentration of
$H_2PO_4+Na_2HPO_4$ mixture (pH 7.4).

Medium D: 7.5 percent horse serum, 1.0
rcent glucose, and 0.5 percent final con-
ntration of $KH_2PO_4+Na_2HPO_4$ mixture
H 7.4).

Medium E: 7.5 percent horse serum and
percent pyruvic acid.

Medium F: 7.5 percent horse serum, 1.0
rcent pyruvic acid, and 0.5 percent final
ncentration of $KH_2PO_4+Na_2HPO_4$ mix-
re (pH 7.4).

Medium G: 10 percent citrated human
ood (chocolatized) plus 1.0 percent
ucose.

Medium H: 10 percent citrated human
ood (chocolatized), 1.0 percent glucose,
d 0.5 percent final concentration of
$H_2PO_4+Na_2HPO_4$ mixture (pH 7.4).

Medium I: 10 percent citrated human blood (chocolatized).

Medium J: 10 percent citrated human blood (chocolatized) and 0.5 percent final concentration of $KH_2PO_4+Na_2HPO_4$ mixture (pH 7.4).

All of the above 10 experimental batches were adjusted to pH 7.4 and sterilized in the autoclave at 15 pounds for a period of 20 minutes. The human citrated blood was added to the melted medium at 80° C. and held at that temperature until it assumed a chocolate-brown color. The primary and secondary phosphate salts were added to mediums C, D, F, H, and J in order effectively to buffer the mediums. They were added in proper proportions so that a concentration of 0.5 percent was obtained in mixture and the pH of the medium was 7.4. The glucose used in mediums B, D, G, and H was sterilized separately and added aseptically to the mediums to give a 1-percent final concentration.

There were three types of oxidase reagents used in these experiments:

A. *Unadjusted diamine reagent:* This is the common oxidase reagent in use in the laboratory diagnosis of the gonococcus (*5*, *6*). It consists of a freshly prepared 1.0-percent aqueous solution of dimethyl-p-phenylenediamine monohydrochloride (p-amidodimethylaniline monohydrochloride). It has been our experience that the color of this chemical and the pH of the 1.0-percent solution prepared may differ from batch to batch. The reaction of the 1.0-percent solution of diamine is rather acid and usually around pH 4.5.

B. *Adjusted diamine reagent:* The acidity of the diamine is neutralized with sodium carbonate as follows:

1.0-percent aqueous solution of dimethyl-p-phenylenediamine HCl	96.55 ml.
10.0-percent sodium carbonate	3.45 ml.

The final reaction in this particular experiment was pH 6.92. The diamine solution was always freshly prepared.

C. *Naphthol-diamine reagent:* The indophenol blue reaction has been used for the demonstration of gonococcic oxidase by Nishibe (7), Gordon and McLeod (5), and Joachimovits (8). The so-called Nadi reagent used for this test (9) consists essentially of a slightly alkaline mixture of alpha-naphthol and dimethyl-p-phenylenediamine HCl.

It was found in preliminary tests that a more pronounced and rapid indophenol blue reaction was obtained by the use of a tenfold concentration of diamine in the mixture. Furthermore, in order to compare results with the unadjusted diamine reagent (A), the naphthol-diamine reagent was prepared so that the mixture was distinctly acid. The mixture finally used for these experiments consisted of equal parts of the following:

1.0-percent aqueous solution of dimethyl-p-phenylenediamine HCl.

0.144-percent alpha-naphthol in 50 percent ethanol.

0.044-percent aqueous solution of sodium carbonate.

The final reaction of this reagent, as prepared for this series of experiments, was pH 5.52.

In some experiments (see table 2), 0.04-percent phenol red was used as an indicator of acidity and alkalinity of the incubated mediums and colonies.

The various urethral exudates were collected with sterile cotton-tipped applicators and deposited in carrying tubes containing sterile solution of 2 percent Bacto-proteose peptone No. 3 and 0.5 percent sodium chloride. Primary cultures of the gonococcus were used in the first part of this report (table 1). The specimens in the carrying tubes were diluted sufficiently with the peptone-sodium chloride solution so that 1 drop on each plate would produce discrete colonies. Gonococcus cultures recently isolated from the Huffer-Hill medium were used for the second part of this work (table 2). Five milliliters of the peptone-sodium chloride solution was added to each tube an 1 drop of the homogenized suspension wa added to each type of medium employe All plates were incubated for a period 48 hours at 35° C. in the presence of percent carbon dioxide. The gonococcu colonies were then tested with the unadjusted diamine and napthol-diamine reagents in the first group, while the gonococcus colonies were tested with unadjusted diamine, adjusted diamine, an phenol red indicator in the second grou

RESULTS

The first part of this study compare results obtained when the unadjuste diamine and the naphthol-diamine reagents were applied to primary isolate gonococcus colonies growing on th Huffer-Hill medium and the modified Mc Leod horse plasma-hemoglobin agar (4 The typical diamine reaction of the gonococcus colonies, when 1-percent aqueou solution of dimethyl-p-phenylenediamin monohydrochloride is used, consists of series of color changes of the colony fro a faint pink color through red and ending as jet black in 10 to 30 minutes (5 10). In contrast to this, a number rather atypical reactions with this reagent were observed; the appearance o a final pink color, which did not eventually turn black, and the appearance o red colonies, which faded gradually to faint pink or even became colorles within the 30-minute observation perio allotted for the test. A test was considered negative when there was no observe color reaction of the colonies within th 30-minute observation period after th application of the oxidase reagents.

When the naphthol-diamine reagent i used on gonococcus colonies, a series o color changes is observed starting with light shade of violet and ending with deep blue color within the 30-minut observation period.

Table 1 is a tabulation of the type o reactions observed on gonococcus colonies grown as primary cultures on the Huffer-Hill and modified McLeod horse plasma-hemoglobin agar when diamine and naphthol-diamine reagents are employed.

ABLE 1.—*Comparison of unadjusted diamine and naphthol-diamine oxidase reagents on gonococcus colonies grown on Huffer-Hill and modified McLeod mediums*

ledium tested	Unadjusted diamine oxidase test							Naphthol-diamine oxidase test						
	Number of cultures	Reaction						Number of cultures	Reaction					
		Typical		Atypical		Negative			Typical		Atypical		Negative	
		Number	Percent	Number	Percent	Number	Percent		Number	Percent	Number	Percent	Number	Percent
fer-Hill	107	50	46.7	52	48.6	5	4.7	107	106	99.1	1	0.9	0	0
dified McLeod	107	107	100.0	------	0	------	0	107	107	100.0	------	0	------	0

An examination of table 1 shows that 6 percent of the primary cultures of ococci on the Huffer-Hill medium gave ypical oxidase reactions when tested th the unadjusted diamine reagent, ile 4.7 percent of the cultures gave no or reaction at all. When the naphthol-amine reagent was used, the gonococ- s colonies of only one plate (0.9 per- t) showed atypical color reaction. On other hand, all of the primary cul- es of gonococci grown on the modified Leod medium gave typical oxidase re- ions using either unadjusted diamine the naphthol-diamine reagents.

Table 2 summarizes the various condi- ns under which atypical oxidase reac- ns are obtained with the different mediums. These conditions were: the color reaction of the gonococcus colonies to phenol red indicator; adjustment of the pH of the diamine reagent to neutrality with concentrated solution of sodium carbonate; and variations in the constituents of the medium (such as the addition of 1 percent glucose, buffer salts, 1 percent pyruvate, horse serum, and human blood). For this group of experiments 10 different recently isolated strains of gonococci were used for the test organisms.

A compilation of atypical oxidase reactions obtained in the 10 experimental mediums and the Huffer-Hill medium is given in table 2. It is seen from this table that when the diamine reagent was

BLE 2.—*Atypical oxidase reaction using adjusted and unadjusted diamine reagent obtained on 10 strains of gonococci grown on 11 types of mediums at pH 7.4*

	Medium										
	A	B	C	D	E	F	G	H	I	J	
	Horse serum	Horse serum glucose	Horse serum PO_4 salts	Horse serum glucose PO_4 salts	Horse serum pyruvate	Horse serum pyruvate PO_4 salts	Human blood glucose	Human blood glucose PO_4 salts	Human blood	Human blood PO_4 salts	Huffer-Hill
l number of gonococcus strains tested	10	10	10	10	8	10	10	10	10	10	10
Acid to phenol red	------	9	------	------	1	------	1	------	------	------	3
Alkaline to phenol red	10	1	10	10	7	10	9	10	10	10	7
pical reactors, using unadjusted diamine reagent	2	9	------	------	1	------	8	------	------	------	2
Acid to phenol red	------	9	------	------	------	------	1	------	------	------	1
Alkaline to phenol red	2	------	------	------	1	------	7	------	------	------	1
pical reactors, using adjusted di- ine reagent	------	------	------	------	------	------	------	------	------	------	------

adjusted to neutrality no atypical oxidase reaction of the gonococcus colonies grown on the 11 mediums was observed. Where 1 percent glucose was added to the medium containing either horse serum or chocolatized human blood as source of enrichment, a larger number of atypical reacting gonococcus colonies were observed with the common unadjusted diamine reagent. When the culture medium was buffered with phosphate salts, no atypical oxidase reactors were obtained with the diamine reagent irrespective of whether or not glucose was added to the medium. When 1-percent pyruvic acid, an intermediary product of glucose oxidation (*11*) was added to the basic medium containing horse serum (final pH 7.4) little effect was observed with respect to atypical reactors.

The results of the application of phenol red solution to gonococcus colonies did not show a consistent correlation between acidity of gonococcus colonies as shown by the use of this indicator and atypical oxidase reactions. It is to be noted that in the presence of glucose and horse serum, all of the atypical oxidase colonies were acid to phenol red indicator whereas the majority of colonies grown on the medium containing glucose and chocolatized human blood were alkaline to phenol red. Of the two atypical oxidase reactors grown on the Huffer-Hill medium one strain proved to be acid to phenol red while the other was alkaline to phenol red.

SUMMARY AND CONCLUSIONS

When the Huffer-Hill and 10 different culture mediums of varying composition were employed, certain observations underlying the use of the direct oxidase test on gonococcus colonies were studied. Under the conditions of the experiment the following results were obtained:

1. Atypical and negative oxidase reactions of the gonococcus were obtained on the Huffer-Hill medium, using a freshly prepared 1-percent aqueous solution of dimethyl-p-phenylenediamine monohydrochloride as the test reagent.

2. The naphthol-diamine reagent proved to be more reliable than the una justed diamine reagent on the Huffer-H medium.

3. When the diamine reagent was a justed to neutrality with sodium carb nate, no atypical or negative oxidase r actors were obtained from gonococc colonies grown on the 11 different m diums used.

4. The use of neutralized diamine r agent as a routine procedure for testi the oxidase reaction of gonococcus colo ies is indicated.

5. A larger number of atypical oxida reactors were observed when 1 perce glucose was added to the medium, ir spective of the presence of horse serum chocolatized human blood as the source enrichment.

6. When phosphate buffer salts we added to mediums containing glucose, no mal oxidase reactions to adjusted a unadjusted diamine reagents were o tained.

7. One percent pyruvic acid added the mediums had little effect on the o dase reaction given by the gonococcus.

8. Using phenol red as an indicator f acidity or alkalinity of gonococcus colo ies, it was found the atypical oxidase r actors were obtained with either acid alkaline reacting colonies.

9. The addition of chocolatized huma blood as compared with horse serum as source of enrichment to the basic med ums exerted little effect on the type oxidase reaction obtained.

REFERENCES

1. PITTS, A. C.: The culture method in dia nosis of gonorrhea. Presentation of new medium. Ven. Dis. Inform., 2 67–74, 1940.
2. WECKSTEIN, A. M.: A rapid method for t primary isolation and identification Neisseria. U. S. Nav. Med. Bull., 4 889–894, 1945.
3. HUFFER, V.; HILL, J.: A meat-free cysti glucose blood agar medium for Ne seria gonorrhoeae. Ven. Dis. Inform 24: 260–262, 1943.
4. THAYER, J. D.; SCHUBERT, J. H.; BUCC M. A.: The evaluation of culture me ums for the routine isolation of t gonococcus. J. Ven. Dis. Inform., 2 37–40, 1947.

. GORDON, J.; MCLEOD, J. W.: The practical application of the direct oxidase reaction in bacteriology. J. Path. & Bact., 31: 185–190, 1928.

. CARPENTER, C. M.: The gonococcus. *In* Diagnostic Procedures and Reagents. 1st ed. American Public Health Association, Standard Methods Committee on Diagnostic Procedure and Reagents, New York, 1941. Pp. 85–111.

. NISHIBE, M.: The oxidase reaction in bacteria. I. Morphology and distribution of oxidase reaction in different species. Sci. Rep. Govt. Inst. Inf. Dis. (Tokyo), 5: 185–193, 1926.

8. JOACHIMOVITS, R.: Die Hamolyse und Oxydasereaktion als Mittel zur Differentialdiagnose von Gonokokkus, Mikrokokkus katarrhalis und Meningokokkus. Zentralbl. f. Bakt. (Abt. 1), Orig., 125: 240–244, 1932.

9. KEILIN, D.: Cytochrome and respiratory enzymes. Proc. Roy. Soc., B., London, 104: 206–252, 1929.

10. PRICE, I. N. O.: The oxidase reaction in the laboratory diagnosis of gonorrhoea. Brit. M. J., 1: 199, 1929.

11. BARRON, E. S. G.; MILLER, C. P.: Studies on biological oxidations. I. Oxidations produced by gonococci. J. Biol. Chem., 97: 691–715, 1932.

Syphilitic Nephrosis

A Report of Two Cases

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Stokes (*1*) says that syphilitic nephro- is is marked by an abrupt onset early n the course of the infection, severe dema, progressive weakness with ane- nia, and surprisingly little effect on the eneral health in other ways. The urine xhibits a massive albuminuria which is lmost distinctive in itself. The average nset is about the fifth month of the yphilitic infection and the response to pecific therapy is dramatic.

The two cases we are reporting satisfy ll these criteria. Because of the infre- uency of true syphilitic nephrosis we eel that these cases merit reporting in he literature.

CASE 1.—K. H., a Negro female, aged 0, was admitted to Gallinger Hospital on ecember 7, 1943, complaining of swell- ng of the legs and genital lesion of about weeks' duration.

Physical examination.—The tempera- ure was 98.6° F., pulse rate 80, respira- ory rate 20, blood pressure 120/80, eight 120 pounds.

The physical examination was nega- ve except for 4 plus pitting edema of the ankles and the lower half of the legs, a painless solitary lesion of the fourchette and a large rubbery nontender left inguinal lymph node. A darkfield examination of the lesion revealed Treponema pallidum.

Laboratory examination.—The hemoglobin was 70 percent, the red blood cell count was 3.5 million, and the white blood cell count was 8,600 with a normal differential. A catheterized urine specimen was yellow and clear. The specific gravity was 1.020, albumin was 4 plus, and the test for sugar was negative. Microscopically, there were a few white blood cells per high-power field. The quantitative Kahn test was positive 20 units.

On the basis of these findings the diagnosis of primary syphilis was made—seropositive with syphilitic nephrosis. In order to make the therapeutic test reliable no attempt was made to restrict salt, fluid, or activity of the patient.

Therapy.—Five-day intensive arsenotherapy was administered. This consisted of 240 mg. of mapharsen in 2,000 cc. of 5 percent dextrose in distilled water by slow intravenous drip for five consecutive days.

From the Rapid Treatment Center, Gallinger unicipal Hospital, Washington, D. C.

Clinical course.—On the first treatment day the patient complained of mild nausea and severe diuresis. On the second treatment day the edema was visibly diminished and the diuresis persisted. At the completion of the therapy the urine was normal except for a trace of albumin, the edema was no longer visible, and the weight of the patient was 113 pounds.

Subsequent course.—The patient was observed monthly for 1 year with no recurrence of the edema or albuminuria. The serologic test for syphilis became negative at the end of 4 months and remained so for 8 months, when the patient was lost from observation.

CASE 2.—C. H., a Negro female, aged 15, was admitted to Gallinger Hospital on May 29, 1946, complaining of swollen ankles and lesions of the face and genitals. The genital lesions had been present for 4 to 5 weeks, those of the face for 2 weeks, and the edema of the ankles for 4 to 5 days.

The history also revealed that her hair had been falling out for about 1 month prior to admission.

Physical examination.—The temperature was 98.8° F, pulse rate 82, respiratory rate 20, blood pressure 120/80 in the right arm, weight 120 pounds.

The patient was a well-developed, slightly obese female. There was some puffiness of the face, most marked in the periorbital tissues. A moderate "moth-eaten" alopecia was noticed. Two small annular syphilides were present on the face at the angles of the nares. Fundascopic examination was negative. The chest findings were negative. The extremities were normal except for 4 plus pitting edema of the ankles and lower one-third of the legs. Pelvic examinations revealed 25–30 condylomata over the vulva and perineum. A generalized lymphadenopathy was present including epitrochlear and posterior cervical nodes. The neurologic examination was negative.

Laboratory examination. — Darkfield examination of the vulvar lesions showed Treponema pallidum. The quantitative Kahn serologic test was positive 12 units. Catheterized urine showed specific gravity of 1.010; albumin was plus, sugar negative, 3 to 6 red blood cell per high-power field, and a few whit cells. The hemogram was: hemoglobi 68 percent, red blood cells 3.7 million, an white blood cells 8,900 with a normal differential. Total proteins were 5.93 gm with an albumin globulin ratio of 3.16 t 2.51. The phenolsulfonephthalein excretion test was normal.

These findings led us to make a diagnosis of secondary syphilis with syphiliti nephrosis. Again, to make the therapeutic test reliable, there was no restriction of fluid, salt; or activity of the patient.

Therapy and course.—The patient wa treated with penicillin-oil-beeswax in dosage of 1 cc. (300,000 units) daily fo 14 days.

On the third treatment day there wa objective improvement of the edema, th urine showed a decrease in albumin, an the patient had lost 3 pounds.

On the seventh treatment day ther was no clinical evidence of edema an the patient had lost a total of 7½ pounds

On discharge, the urine examinatio revealed only a slight trace of albumin The lesions were completely healed an there was no evidence of edema.

One month after discharge the patien was re-examined. She showed no evidence of edema and had a completely negative urine. Another examination 2 months after discharge was completel negative.

SUMMARY

Two cases of syphilitic nephrosis ar presented, one treated with arsenic and the other with penicillin. Both responded dramatically to specific antisyphilitic therapy.

REFERENCES

(*1*) STOKES, J. H.; BEERMAN, H.; INGRAHAM N. R., Jr.: Modern Clinical Syphilology, 3rd ed. Philadelphia, W. B. Saunders Co., 1945.

CURRENT LITERATURE

NOTE: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the past 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

Brit. M. J., London

Chemical prophylaxis of venereal disease. Letters, Notes, and Answers. No. 4454: 785, May 18, 1946.

Gonococcal vulvo-vaginitis. Letters, Notes, and Answers. No. 4464: 146, July 27, 1946.

Marriage and syphilis. Letters, Notes, and Answers. No. 4474: 521–522, Oct. 5, 1946.

Secondary and latent syphilis. Letters, Notes, and Answers. No. 4474: 522, Oct. 5, 1946.

Reiter's disease. Joseph Denfield. Correspondence. No. 4475: 555, Oct. 12, 1946.

ull. Soc. path. exot., Paris

Sur le problème de la syphilis exotique. Fréquence de la syphilis et de certains des aspects cliniques dans un service hospitalier de medécine génerale a Alger. (On the problem of the exotic syphilis. Frequency of syphilis and of some of the clinical manifestations in a general medical hospital ward in Algiers.) Francois-Georges Marill. 39: 178–184, 1946.

anad. J. Pub Health, Toronto

Treatment of personnel of the merchant marine during the war. C. P. Brown. 37: 356–358, Sept. 1946.

orida Health Notes, Jacksonville

A visit to your State laboratory. 38: 168–180, Sept. 1946.

orgia's Health, Hapeville

Closing in on TB-VD. (Report of Augusta demonstrations.) 26: 3, Dec. 1946.

awaii M. J., Honolulu

Recent advances in chemotherapy. Chauncey D. Leake. 6: 81–94, Nov.–Dec. 1946.

alth, Toronto

Sex education is not enough. A discussion of some of the social and moral aspects of V. D. control. Gordon Bates. 14: 10–11, July–Aug. 1946.

Guard their health! Insuring marriage and the newborn against syphilis. Joseph Lichstein. 14: 14–15, 27, July–Aug. 1946; 14: 14–15, 29, Sept.–Oct. 1946.

Health News Service, Toronto

Makes strong plea for premarital and other blood tests. P. 1, May 17, 1946.

J. Arkansas M. Soc., Little Rock

The physician's responsibility in venereal disease control. Davis W. Goldstein. 43: 123–126, Nov. 1946.

J. belge d'urol., Bruxelles

Faut-il adopter le condom pour l'armée. (Should the condom be accepted for the army?) A. Leruitte. 14: 195–203, Apr. 1946.

J. Nat. M. A., New York

An analysis of 317 cases of heart disease in Negroes.. John Thomas. 38: 202–205, Nov. 1946.

Health goals. Thomas Parran. 38: 213–216, Nov. 1946.

J. Pediat., St. Louis

*Penicillin in the treatment of childhood gonorrhea. Henry F. Lee and Walter Sussman. 28: 590–591, May 1946.

Penicillin in the treatment of childhood gonorrhea.—The authors report on 21 cases of gonorrhea in children treated by penicillin in various dosages.

The children received from 100,000 to 300,000 units of penicillin in one or another of the following forms: Saline solution intramuscularly; beeswax-peanut oil suspension; and oral tablets with sodium citrate buffer. Thirteen patients had vaginitis, to 10 of whom no previous therapy had been administered; 3 had been treated with sulfonamides without bacteriologic cure. Eight were cases of acute anterior urethritis in boys less than 10 years of age, none of whom had received any previous therapy.

One patient with chronic gonorrhea and a discharge of 4 months' duration had previously received at least 2 courses of sulfadiazine, each followed by clinical relapse. This individual had also received theelin in dosages of 5,000 units per week for 3 weeks, smears still being positive. One hundred and fifty thousand units of beeswax-peanut oil suspension were followed by improvement, then recurrence of discharge, but 300,000 units of the same preparation subsequently administered brought prompt cure.

Cure in girls was accepted only after three negative smears and three negative cultures; in boys, three negative smears were accepted, although in all but one instance there were also one or more negative cultures. In all patients, there was complete cure regardless of the method of administration of penicillin, all smears and cultures being negative after treatment. Discharge was usually absent by the fourth or fifth day after treatment, and in the boys it usually subsided in 24 to 36 hours.

J. Social Hyg., New York

The American Social Hygiene Association. 32 : 241–250, June 1946.

*Peacetime relationships in venereal disease control. A working agreement between the Army, Navy, Coast Guard, the Federal Security Agency and the American Social Hygiene Association. 1946. 32 : 251–256, June 1946.

Peacetime relationships in venereal disease control. A working agreement between the Army, Navy, Coast Guard, the Federal Security Agency and the American Social Hygiene Association. 1946.—The Eight Point Agreement of 1946 concerning the control of venereal diseases includes the following services:

1. Early diagnosis and adequate treatment by the Army, Navy, and Coast Guard of military personnel infected with venereal disease.

2. Adequacy of case-finding, diagnostic, treatment, and case-holding procedures by health departments among the civilian population.

3. Decrease of opportunity for contact with persons suspected of being infected, including the repression of commerci and clandestine prostitution.

4. Continuation of an educational pr gram concerning the dangers of venere disease infection, prophylaxis, and ava able treatment of infected persons, bo military and civilian.

The Army, Navy, and Coast Guard a to provide consultation services and pr phylactic facilities to personnel of tl Armed Forces, and shall continue to d clare "out of bounds" establishmen which serve as places of pick-up.

The U. S. Public Health Service w assist and cooperate with public instit tions and Scientists in the conduct of r search and experiments relating to dia nosis, treatment, and control of venere disease. It will also collect and evalua morbidity, mortality, and clinical data to incidence of venereal disease amo the civilian population, and will exchan appropriate scientific data with oth countries regarding venereal disea control.

The American Social Hygiene Associ tion will furnish advice and materials the Army, Navy, and Coast Guard for tl instruction of their personnel regardi the prevention of venereal disease and tl repression of prostitution. It will al make available data on community co ditions in such areas as requested by tl Army, Navy, U. S. Public Health Servic Social Protection Division, and State an Territorial health authorities.

Lancet, London

"Masked" syphilis. Dangers of penicill therapy. E. Cronin. 2 : 84–85, July 2 1946.

Coronary occlusion in young adults : Revie of 50 cases in the services. Maurice Ne man. 2 : 409–411, Sept. 21, 1946.

Empirical tests of liver function. Montag Maizels. 2 : 451–454, Sept. 28, 1946.

Mil. Surgeon, Washington

*A bacteriologic study of the resistance organisms isolated from cases of nonsp cific urethritis to three chemotherapeut agents. Abraham M. Weckstein. 99 312–316, Oct. 1946.

Desert warfare of another day. (History gonorrhea and syphilis in Napoleon army.) Editorial. 99 : 340–341, Oc 1946.

A bacteriologic study of the resistnce of organisms isolated from cases f nonspecific urethritis to three chemoherapeutic agents.—The author states hat it has been his experience after culuring specimens from many thousands of ases of urethral discharges that the sucess and accuracy of reporting results are rgely dependent upon the method by hich the cultures are taken and the bility of the culture medium to support he growth and isolate the organisms. He urther states that smears are not a reable means of diagnosing gonococcic rethritis infections or any nonspecific rethritis.

A study was set up to determine the ganisms present in urethral discharges males in whom no evidence of Neisseria onorrhoeae is demonstrable on culture nd to evaluate the fastness of these oranisms against common chemotherapeuc agents frequently used to combat them. aterial from one hundred cases of nonecific urethritis was cultured on a whole ood hemolyzed blood plasma agar. The ethods are described in detail.

The results of in vitro study of the ganisms isolated are shown in a table. he organisms isolated in these 100 cases terms of frequency were: hemolytic aphylococcus albus (68.3 percent), phtheroids (15.4 percent), Staphyloccus albus (11.9 percent), Staphyloccus aureus (2.6 percent), and beta molytic streptococcus and gram-negave cocco-bacilli (0.9 percent). The thor states that the frequency of ocrrence of these offending organisms at variance with previous reports based smears or urine cultures.

Sixty-five percent of all strains were sistant to 13.2 units of penicillin per bic centimeter; 69.5 percent of the 59 rains tested were resistant to neoarsenamine (1:10,000); and 95.8 percent all the strains were resistant to as ich as 125 mg. percent sulfadiazine.

An analysis of the pertinent data elicd on questioning the men included in is study revealed the following facts: percent gave a previous history of norrhea; 53 percent had had a discharge for less than 1 month, 32 percent from 1 to 5 months, 5 percent from 6 to 12 months, and 10 percent gave a history of a discharge of over 1 year's duration. Sixty-one percent had previous therapy with penicillin in a range of total dosages of 100,000 to 2,600,000 units; 58 percent had previous therapy with sulfonamides (range 430–1,005 gr.); and 9 percent gave a history of other therapy.

Clinical impressions of the physicians using the chemotherapeutic agents recommended, where susceptible organisms were found, indicate that in vivo results closely parallel the in vitro findings. The author states that where it is possible to carry on in vitro studies of the fastness of isolated organisms to chemotherapeutic agents, such studies will be valuable aids in chemotherapy.

SCIENCE, LANCASTER

Determination of penicillin K by partition chromatography. Harry Fischbach, Merlin Mundell and Thomas E. Eble. 104: 84–85, July 26, 1946.

*Administration of streptomycin in peanut oil and beeswax and in solvecillin. John A. Kolmer, Amedeo Bondi, Jr., Halsey F. Warner and Catherine Dietz. 104: 315–317, Oct. 4, 1946.

*Maintenance of penicillin blood levels after a single intramuscular injection of penicillin in various oils. A. Benson Cannon, Kurt Lindstorm and Anne G. Ospeck. 104: 414–415, Nov. 1, 1946.

*Synthetic penicillin. Vincent du Vigneaud, Frederick H. Carpenter, Robert W. Holley, Arthur H. Livermore and Julian R. Rachele. 104: 431–433, 450, Nov. 8, 1946.

Administration of streptomycin in peanut oil and beeswax and in solvecillin.—The authors report a study on the absorption and excretion of streptomycin suspended in peanut oil and beeswax and in solvecillin.

Three adults were given single intramuscular injections of 250,000 units of streptomycin in 2 cc. of sterile peanut oil and 4 percent beeswax. Only one subject showed a trace of the compound in serum collected 1 and 2 hours after treatment. The total urinary excretion of the compound over a period of 24 hours varied from 3.4 to 7.4 percent of the amount administered. Similar doses dissolved in

2 cc. of sterile saline solution and administered to three adults by intramuscular injection showed serum levels of 1.5, 3.0, and 2.5 units/cc., respectively, at the end of 6 hours, with total excretions of 22.0, 24.0, and 48.0 percent of the amounts administered in the 24-hour urine.

Single intramuscular injections of 500,000 units of streptomycin in the same amount of peanut oil and beeswax administered to three additional adults showed the serum level of the compound in one subject was 2.5 units/cc. at the end of 6 hours but that only traces of the compound appeared in the serum of the remaining two subjects at the end of this period. The total urinary excretion in 24 hours varied from 6.6 to 23 percent of the dose administered. Similar doses dissolved in 2 cc. of sterile saline solution and administered to three adults by intramuscular injections showed serum levels of 1.0, 2.5, and 2.5 units/cc., respectively, at the end of 6 hours, with total excretions of 36.0, 41.0, and 75.0 percent of the amounts administered in the 24-hour urine.

The absorption of streptomycin administered in water-in-oil emulsions (solvecillin) was much more pronounced than that following intramuscular injections of the compound suspended in peanut oil and beeswax. However, the serum levels following intramuscular injections of 250,000 units in solvecillin were not as high as those following intramuscular injections of 500,000 units suspended in peanut oil and beeswax.

The authors conclude that streptomycin suspended in peanut oil and beeswax is not absorbed from the muscles as readily as penicillin.

Maintenance of penicillin blood levels after a single intramuscular injection of penicillin in various oils.—This is a preliminary report on a study to determine the most satisfactory diluent for penicillin from the standpoint of maintaining a blood level of 0.1 unit/ml. over a period of 24 hours after a single intramuscular injection.

Among the diluents tested was a commercially prepared mixture in which the penicillin was suspended in peanut oil a 4.8 percent beeswax. The penicillin w mixed with each diluent in the amount 300,000 units/ml., and the doses inject were 300,000 units (1 ml.), 1,000,000 uni (3.3 ml.), 1,500,000 units (5 ml.), a 2,000,000 units (6.7 ml.), the majority doses being 1,000,000 units. To date, 2 injections of penicillin in various oils ha been given to 36 ambulatory patients, a but 2 of whom were syphilitic.

It is stated that hydrogenated oils d layed the absorption of penicillin mo than the plain oils, a prolonged high lev being frequently observed after the use either hydrogenated cottonseed oil or t penicillin-beeswax-peanut oil mixtu when tested following a 300,000-unit or 1,000,000-unit dose of penicillin. A do of 300,000 units of penicillin in hydr genated cottonseed oil maintained a 0 unit/ml. penicillin level for at least hours in about 80 percent of the case while in the beeswax-peanut oil mixture maintained that level in 66 percent of th cases.

It is concluded that a dosage of 1,500,00 units of a very finely ground calcium pen cillin of high potency suspended in hydr genated cottonseed oil (melting point 4 C.) should maintain a penicillin bloo level of 0.1 unit/ml. for 24 hours or longe in nearly all cases.

Synthetic penicillin.—This report is summary of the investigations which le to the synthesis and isolation of G-pen cillin, designated benzylpenicillin. On th basis of the early postulated oxazolon thiazolidine structure, a number of lab ratories in the United States and in Eng land undertook a synthesis of penicilli which involved condensation of an appr priate oxazolone, possessing a free or po tential aldehyde group, with d-penicil amine. The formation in such reaction of products possessing antibiotic activit was demonstrated independently and a most simultaneously in the United State and Great Britain in 1944. When the oxa zolone was 2-benzyl-4-methoxymethylen 5 (4)-oxazolone, the product was show by comparison of chemical and antibioti

operties to be benzylpenicillin. The
elds were low and the product not iso-
ted.

Subsequently, benzylpenicillin was syn-
esized and isolated in the laboratory of
e authors by a new procedure involving
e condensation of equimolar quantities
d-penicillamine hydrochloride and 2-
nzyl-4-methoxymethylene-5 (4)-oxazo-
ne in pyridine containing triethylamine.
ıe product possessed no antibiotic ac-
ity, but when heated with pyridine con-
ining pyridinium chloride, antibiotic ac-
ity was produced. This synthesis re-
lted in a reaction mixture which con-
ined activity equivalent to 0.1 percent
nzylpenicillin. The active material was
ncentrated by extraction from chloro-
m into phosphate buffer, pH 5.2, fol-
ved by countercurrent distribution be-
een ether and phosphate buffer, pH 4.88.
ter further extractions and distribu-
ns between the same solvents, crystals
triethylammonium benzylpenicillin
re prepared from the most active frac-
ns. The melting point, ultraviolet and
rared absorption spectra, refractive in-
es, antibiotic activity, and specific ro-
ion of the isolated material agreed with
ammonium salt of natural triethylam-
nium benzylpenicillin.

Because of the obscurity of the reaction
chanism, the synthesis at the present
ge of development cannot be used as
ithetic proof of structure of penicillin.
wever, study of the mechanism might
d either to a proof of structure or to
improved method of synthesis, or both,
l by the reaction it is now possible to
ke, although in minute yields, new peni-
ins which might possess desirable
rapeutic properties.

T. NAVY MED., WASHINGTON

apanese Army and Navy medical statistics.
2 : 2, Oct. 1946.
Venereal diseases. Current Morbidity.
2 : 23, Nov. 1946.

enereal diseases. Current morbid-
—The report states that the increase
venereal disease in the Navy which
an soon after VJ-day has been re-
ted in all Naval districts, areas, and
types, making venereal disease the outstanding factor in morbidity at the present time.

The most marked increases are apparent in noncontinental areas and ships; in the former, the incidence rate for all venereal diseases climbed from 17.3 in September 1945 to 128.6 in August 1946, making the present rate more than 7 times that of a year ago. In the West Pacific area, including Japan and China, there was an increase in the rate from 1.8 in September 1945 to the present 188.4. In the Southwest Pacific area, which includes the Philippines, the rate increased in the 1 year from 46.9 to 519.7.

Among the ship types, the trend has been most notable in the larger ships; cruisers indicated an increase in venereal disease incidence from 30.0 in September 1945 to 234.5 in August 1946. In the same period, battleships rose from 6.4 to 102.2, destroyers from 30.1 to 161.3, and aircraft carriers from 26.7 to 120.6.

In continental Naval districts the increase in venereal disease rates has been slower but equally consistent, the over-all rate having risen from 55.5 in September 1945 to 70.8 in August 1946.

A map is presented showing in detail the present incidence rates of venereal disease in the various Naval districts.

U. S. NAV. M. BULL., WASHINGTON

Gonorrheal endocarditis. Report of a case. W. Edward Torrey, Jr. 46 : 1755–1758, Nov. 1946.

Toxic effects of arsenical compounds as administered in the United States Navy in 1945, with special reference to arsenical dermatitis. Otto L. Burton, George W. Justyn and Laura T. Anderson. 46 : 1770–1776, Nov. 1946.

WEST VIRGINIA M. J., CHARLESTON

The place of penicillin in the treatment of syphilis. William M. Sheppe. 42 : 217–223, Sept. 1946.

WIEN. KLIN. WCHNSCHR., VIENNA

Knochenmarkschadigung bei salvarsanbehandlung. (Damage of the bone marrow following arsphenamine therapy.) V. Lachnit. 58 (1) : 666, Nov. 8, 1946.

WISCONSIN M. J., MADISON

Trends and progress in neuropsychiatry. Hans H. Reese. 45 : 1047–1053, Nov. 1946.

Syphilis and Gonorrhea Morbidity Reported to Health Authorities in States and Territories for Last Quarter Fiscal 1946 and First Quarter Fiscal 1947

[Grouped by Public Health Service Districts]

Area	Syphilis															Gonorrhea		
	Primary and secondary			Early latent			Late and late latent			Congenital			Not stated					
	1946			1946			1946			1946			1946			1946		
	April-June	July-September	Trend ratio	April-June	July-September	Trend ratio	April-June	July-September	Trend ratio	April-June	July-September	Trend ratio	April-June	July-September	Trend ratio	April-June	July-September	Trend ratio
District 1:																		
Connecticut	143	107	0.75		144	(2)	394	216	(2)	15	15	(*)	61	58	0.95	362	437	1.21
Delaware	102	102	1.00	80	89	1.11	41	58	1.41	19	3	(*)	20	22	1.10	85	88	1.04
Maine	120	116	.97	37	26	.70	70	51	.73	7	8	(*)	15	3	(*)	251	249	.99
Massachusetts	450	395	.88				738	669	.91	46	62	1.35				1,043	1,198	1.15
New Hampshire	27	28	1.04	10	10	(*)	34	32	.94	10	7	(*)	1	1	(*)	125	123	.98
New Jersey	445	569	1.28	822	1,020	1.24	948	1,086	1.14	72	69	.96	15	14	(*)	1,527	2,025	1.33
New York	2,093	2,083	1.00	2,455	1,787	.73	4,861	3,940	.81	261	183	.70	95	147	1.55	[4] 6,179	[4] 6,210	1.00
Pennsylvania	937	1,062	1.13	1,204	1,473	1.22	1,374	1,792	1.30	148	169	1.14	235	177	.75	1,326	1,569	1.18
Rhode Island	72	72	1.00	39	26	.67	162	108	.67	19	9	(*)	80	49	.61	142	315	2.22
Vermont	36	46	1.28	4	5	1.25	14	14	(*)	5	3	(*)	3		0	126	144	1.14
Total [3]	4,425	4,580	1.04	4,651	4,580	.95	8,636	7,966	.94	602	528	.88	525	471	.90	11,166	12,358	1.11
District 2:																		
District of Columbia	347	462	1.33	380	440	1.16	235	208	.89	13	21	(*)	22	13	.59	2,757	2,685	.97
Maryland	636	636	1.00	447	355	.79	565	400	.71	39	33	.85	412	425	1.03	1,416	1,610	1.14
North Carolina	1,023	1,172	1.14	785	741	.94	276	245	.89	112	110	.98				4,047	3,827	.94
South Carolina	711	257	.36	546	481	.88	363	273	.75	73	20	.27	89	4	.04	2,919	1,916	.67
Virginia	952	1,084	1.14	1,234	1,101	.89	888	787	.89	96	84	.88	48	14	.29	3,500	4,222	1.21
West Virginia	647	921	1.42	454	609	1.34	430	616	1.43	47	67	1.42	85		0	1,539	1,769	1.15
Total	4,316	4,532	1.05	3,846	3,727	.97	2,757	2,530	.92	380	335	.88	656	456	.70	16,178	16,073	.99
District 3:																		
Illinois	1,623	1,675	1.03	1,540	1,647	1.07	1,992	2,227	1.12	128	138	1.08	24		0	9,295	10,043	1.08
Indiana	400	471	1.18	258	306	1.19	569	505	.89	47	46	.98	451	348	.77	817	496	.61
Kentucky	687	621	.90	387	413	1.07	286	240	.84	51	47	.92	164	93	.57	1,882	2,058	1.09
Michigan	1,080	1,152	1.07	1,145	1,122	.98	1,620	1,524	.94	103	127	1.23	518	822	1.59	2,950	3,155	1.07
Ohio	1,347	1,495	1.11	1,447	1,231	.85	1,847	1,644	.89	150	142	.95				1,936	2,650	1.37
Wisconsin	166	191	1.15	164	123	.75	272	285	1.05	13	11	(*)	47	51	1.08	362	405	1.12
Total	5,303	5,605	1.06	4,941	4,842	.98	6,586	6,425	.98	492	511	1.04	1,204	1,314	1.09	17,242	18,807	1.09

Arkansas	554	542	.98	1,005	1,051	1.04	823	908	1.09	156	148	.95				1,367	1,800	1.32
Florida	944	1,001	1.06	1,631	1,332	.82	1,091	1,131	1.04	123	100	.81	479	552	1.15	4,778	3,905	.82
Georgia	937	(1)		1,000	(1)		1,953	(1)		221	(1)		1	(1)		4,113	(1)	
Louisiana	1,552	1,510	.97	1,242	1,227	.99	751	764	1.02	211	167	.79	1,506	1,499	.99	3,657	3,531	.96
Mississippi	2,522	2,560	1.02	1,830	1,546	.84	1,577	1,459	.92	292	266	.91				11,380	11,882	1.04
Tennessee	1,041	1,140	1.10	1,222	1,110	.91	1,035	803	.78	73	81	1.11	15	14	(*)	6,535	7,274	1.11
Total [3]	8,473	(1)	.97	8,753	(1)	.92	7,725	(1)	.96	1,168	(1)	.90	2,731	(1)	1.02	34,703	(1)	1.00
District 5:																		
Alaska	27	25	.92	10	4	(*)	4	2	(*)	1	1	(*)	2		0	260	259	1.00
Arizona	165	141	.85	104	96	.92	122	98	.80	16	13	(*)				382	425	1.11
California	1,424	1,763	1.24	1,600	2,051	1.28	2,587	3,082	1.19	150	186	1.24	132	178	1.35	7,756	9,656	1.24
Nevada	29	20	.69	2		0	71	79	1.11	5	12	(*)	30	24	.80	71	92	1.30
Oregon	91	116	1.27	48	42	.88	136	143	1.05	11	14	(*)	37	29	.78	462	657	1.42
Hawaii	23	13	.56	18	22	(*)	172	83	.48	13	11	(*)	2		0	143	210	1.47
Washington	183	189	1.03	148	121	.82	188	170	.90	18	14	(*)	28	39	1.39	1,096	1,250	1.14
Total	1,942	2,267	1.17	1,930	2,336	1.21	3,280	3,657	1.11	214	251	1.17	231	270	1.17	10,170	12,549	1.23
District 6:																		
Puerto Rico	273	269	.98	795	798	1.00	523	413	.79	494	408	.82	4	3	(*)	1,423	1,535	1.08
Virgin Islands	5	1	(*)	6	22	(*)	4	3	(*)	2	1	(*)				42	31	.74
Total	278	270	.97	801	820	1.02	527	416	.79	496	409	.82	4	3	(*)	1,465	1,566	1.07
District 7:																		
Iowa	167	156	.93	108	136	1.26	116	109	.94	3	6	(*)	25	20	.80	574	484	.84
Kansas	177	184	1.04	152	158	1.04	189	246	1.30	28	27	.96		39		710	705	.99
Minnesota	132	180	1.36	71	69	.97	204	146	.72	15	16	(*)	21	22	1.05	614	534	.87
Missouri	915	(1)		1,126	(1)		945	(1)		91	(1)		57	(1)		2,183	(1)	
Nebraska	143	120	.84	158	175	1.11	320	273	.85	26	27	1.04	136	125	.92	393	435	1.11
North Dakota	24	54	2.25	11	14	1.27	2	14	(*)		1		12	17	(*)	123	179	1.46
South Dakota	48	59	1.23	28	34	1.21	44	62	1.41	11	6	(*)	2	2	(*)	160	169	1.06
Total [3]	1,606	(1)	1.09	1,654	(1)	1.11	1,820	(1)	.97	174	(1)	1.00	253	(1)	1.15	4,757	(1)	.97
District 8:																		
Colorado	204	244	1.20	196	172	.88	219	212	.97	25	24	.96				651	730	1.12
Idaho	55	62	1.13	35	54	1.54	38	38	1.00	7	6	(*)	15	18	(*)	122	190	1.56
Montana	27	36	1.33	36	14	.39	2	13	(*)	5	1	(*)	8	16	(*)	71	71	1.00
Utah	58	32	.55	21	24	1.14	74	47	.64	5	2	(*)				150	142	.95
Wyoming	18	34	1.89	20	27	1.35	39	29	.74	2	2	(*)	4	7	(*)	78	80	1.02
Total	362	408	1.13	308	291	.94	372	339	.91	44	35	.80	27	41	1.52	1,072	1,213	1.13

For footnotes, see end of table.

Syphilis and Gonorrhea Morbidity Reported to Health Authorities in States and Territories for Last Quarter Fiscal 1946 and First Quarter Fiscal 1947—Continued

Area	Syphilis															Gonorrhea		
	Primary and secondary			Early latent			Late and late latent			Congenital			Not stated					
	1946			1946			1946			1946			1946			1946		
	April-June	July-September	Trend ratio	April-June	July-September	Trend ratio	April-June	July-September	Trend ratio	April-June	July-September	Trend ratio	April-June	July-September	Trend ratio	April-June	July-September	Trend ratio
District 9:																		
New Mexico	136	132	.97	133	114	.86	149	116	.78	14	23	(*)	------	------	------	363	376	1.04
Oklahoma	416	(1)	------	670	(1)	------	1,010	(1)	------	122	(1)	------	228	(1)	------	3,316	(1)	------
Texas	1,044	942	.90	1,289	1,076	.83	627	459	.73	149	122	.82	153	1,078	7.04	3,835	5,592	1.46
Total [3]	1,596	(1)	.91	2,092	(1)	.84	1,786	(1)	.74	285	(1)	.89	381	(1)	7.04	7,514	(1)	1.42
Canal Zone	18	16	(*)	15	25	(*)	36	34	.94	3	3	(*)	6	------	0	259	284	1.10
Total Continental United States [3]	27,973	(1)	1.03	28,147	(1)	.97	32,786	(1)	.97	3,345	(1)	.94	6,004	(1)	1.16	102,399	(1)	1.07
Total United States and possessions [3]	28,319	(1)	1.03	28,991	(1)	.97	33,525	(1)	.96	3,858	(1)	.92	6,018	(1)	1.16	104,526	(1)	1.07

*Ratio not calculated when base is less than 20.

[1] Data not available.

[2] Data not comparable.

[3] Trend ratio is based on areas reporting comparable data in both periods.

[4] New York City only.

Source: Form 8958 B.

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FEDERAL SECURITY AGENCY

UNITED STATES PUBLIC HEALTH SERVICE

THOMAS PARRAN, *Surgeon General*

Editor: J. R. HELLER, Jr., *Medical Director*
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Venereal Disease Interviewing[1]

Howard P. Steiger, M. D.,[2] and Jane Barbara Taylor, R. N.[3]

There are no infallible rules for case- ding interviewing and no given case or uation is likely to conform to any gen- ıl outline of procedure; the interview ıst be individualized (*1*). However, ny small points which lead to the con- 't often are missed through haste and ıck of orderly thinking. It is the pur- se of this paper to present for the dance of others some of the points ich easily can be overlooked but which 'e been found useful for interviewers ose functions include case finding for Institute for the Study of Venereal ease, University of Pennsylvania, as l as for several other clinics.

Prerequisites to the Interview

'he provision for complete privacy is ortant. The information gained in interview is confidential and every ıns must be used to impress this upon patient. A private office with walls the ceiling and freedom from inter- tions—telephone calls, or visits from ses or doctors—are necessary.

he interviewer must have the type of sonality (*2*) suitable for the establish- ıt and maintenance of an understand- , noncritical attitude. Palmer (*3*) ımarizes important qualifications of nterviewer as "Tact, a good working wledge of human behavior, lots of mon sense, and a well-developed sense ıumor. . . ." "The aim of the nurse interviewer) in a VD clinic is not to help control the disease but to the patient achieve self-maintenance, -respect and normal living. . . ."

Knowledge of venereal diseases

A basic knowledge of the diseases is imperative. Especially important is knowledge of the range of the incubation periods. From a practical point of view, the following approximations may be useful for contact-tracing procedures:

Primary syphilis: 10 to 90 days with an average of 3 weeks.
Secondary syphilis: 30 to 150 days after exposure.
Gonorrhea: 2 to 10 days.
Chancroid: 3 to 7 days.
Lymphogranuloma venereum and granuloma inguinale: Advisable to go back at least 3 months in seeking contacts, provided patients are in a relatively acute stage.

The interviewer must be able to speak in terms understandable to the patient, who has little knowledge of medical terminology.

Knowledge of the case

A knowledge of the individual's case prior to the interview usually can be obtained from the patient's record, although frequently it is useful to discuss the case with the physician before meeting the patient. The interviewer should have a tentative estimation of the stage of the disease from the examining physician before the interpretative interview. It is unfair both to the interviewer and the patient if the only diagnosis the interviewer knows is "syphilis."

The time that is available for an interview naturally governs the approach to a given case (*4*). Cases in which the most can be accomplished should be given priority. Naturally, a better yield of infectious contacts may be expected from a case of secondary syphilis than from a late case. Other factors such as poor follow-up potentialities in a given area of the community must also be considered in giving priority and time to a case to be interviewed.

'rom the Institute for the Study of Vene- Disease, University of Pennsylvania, John ;tokes, M. D., Director; and the Depart- of Dermatology and Syphilology, School edicine, and Hospital, University of Penn- nia, Philadelphia, Pa., Donald M. Pills- M. D., Director.

'assed Assistant Surgeon (R), U. S. Public th Service.

irector, Field Work, Institute for the y of Venereal Disease, University of sylvania, Philadelphia, Pa.

Group education

The senior author, in using group education of over 5,000 venereal disease patients in a rapid treatment center, found it to be an efficient and time-saving preliminary to the individual interview. It is not, however, a substitute for the interview.

With increased facilities for hospitalization of venereal disease patients, group education has become a practical adjunct to the interview. Interviewing is a give-and-take proposition. An individual poorly informed or poorly managed therapeutically will not yield the maximum of accurate information as to his contacts. Many an agitated or coerced patient has given false data which have led the investigator on a wild and hopeless search.

Case-Finding Interview

Introduction

In spite of the limitations of time, a few minutes of introduction in talking of things other than venereal disease is advantageous. Stokes (*5*) points out that the establishment of a proper but not excessive degree of familiarity with the patient is an essential factor in the development of a working relationship. During these few early moments, the patient should be made to feel that the interviewer is his friend and that they see some problems in the same light. The patient must feel that the interviewer is there to help him and that he can return at any time for further assistance.

Approach to the patient

When confronted with the diagnosis of syphilis, many patients become depressed and resentful. Much can be accomplished in the first interview by explaining that the patient really is fortunate in coming for treatment at that particular time rather than later. If a favorable prognosis is in order, this can be given, but it should be clear that this prognosis means *with* treatment.

As stated by O'Leary (*6*) it is advisable for the interviewer to avoid naming the disease first, if possible. If the pa-
tient can bring himself to repeat tl
word "syphilis" or "gonorrhea," it wi
help him to accept the disease. The ph
sician's orders should be interpreted ar
the patient told when regular treatme
will be completed. Emphasis on the ne
for regular treatment and follow-up
the time of the initial interview may sa
many a tiresome home visit several wee
later.

It is important for the individual inte
viewed to understand that his name w
not be mentioned at any time througho
the investigation of contacts. Use of tl
epidemiologic report form should be e
plained and the fact brought out th
there is no way for even the investigat
to know from whom the contact inform
tion originated. A number only is us
to check back on the success of the inte
viewing.

Community spirit approach.—The a
thors have been particularly impress
with the results of the community spi
approach. Many individuals, partic
larly those of teen age, have never iden
fied themselves with the adult comm
nity, and welcome an opportunity to
their part in civic life.

It should be pointed out that if t
contacts go undiagnosed and untreate
there is not only a distinct personal da
ger, but the health of the entire comm
nity is involved. At this point a di
gram might be used to explain how n
merous contacts are traced to one in
vidual.

In spite of the "community approac
and the patient's responsibility to his co
tact, the interviewer must not lose sig
of the fact that human beings are nat
rally interested in their own welfa
Whether or not the rest of the communi
comes down with syphilis or another
nereal disease is of little concern to so
clinic patients. The patient should re
ize the possibility of reinfection. It m
be explained that the patient may re
quire the same disease from anoth
individual whose infection came from t
patient through other persons. Had
given all his contacts this might have be
prevented.

sking for the contact

In the process of bringing the patient
the point.of naming contacts the ques-
n most frequently asked is, "What will
ey say to her?" The interviewer an-
ers: "The same thing that is said to a
rson who has been exposed to any dis-
se. If someone is exposed to typhoid
ver or another communicable disease,
is simply asked to have an examina-
n. The contact often asks, 'Where did
u get my name?' Since the doctor mak-
the examination has only the epi-
miologic report form which contains no
mes he has no alternative but to say,
don't know. The patient's name is
ver given'."

The patient is not asked "Where did
u get this infection?" But is asked
out his exposures or contacts. Plural
ms are advised as a way of indicating
at the patient may have had multiple
posures. The patient must understand
at he controls the fate of his contacts,
a great extent.

In asking for the contact in an early
se, one must proceed in an orderly man-
r. The patient's thoughts are confused
d his concern over his prognosis does
t lend itself to unassisted contact rea-
ning. Experience in our clinic leads us
believe that the patient must be in-
ced to think chronologically. If this
not done, some of the contacts in-
riably will be missed. The patient
ually does not know definitely from
om he contracted the disease, but often
s an idea. This must not blind the in-
viewer to other contacts, for the inter-
wer is interested not only in the source,
in exposures. The individual situa-
n must be considered in using the term
posures," which many patients will not
lerstand. We have interviewed pa-
nts who have denied any exposure and
er said that they thought an ejacula-
n was necessary to be considered an
posure. Some individuals require tact-
but down-to-earth terminology. In
s clinic, when the infectious case is be-
interviewed, we start with "last
ht" and trace back through the incuba-
n period of the disease.

Sexual perversion, which is a not uncommon means of venereal disease transmission, must be kept in mind (7). Ability to make a quick analysis of the patient, and a considerable amount of skill are needed to secure such contacts.

Obtaining description of the contact

When the name or address of a contact is unknown, bits of information which may seem useless are often just the clues which lead the investigator to the contact. Names and nicknames are indeed important, but not absolutely necessary if the interviewer can obtain other descriptive information. The interviewer's judgment as to the validity of name and address will determine the necessity for other information. Even when the name and address are known, the color, approximate age, and sex also should be recorded.

The following descriptive details are valuable for identifying contacts when name and address are unobtainable:

Height and weight.—These factors are descriptive but often inaccurate. It is well to bear in mind that descriptions are frequently relative and must be evaluated as such. Comparison with the interviewer or the patient will often give a hint as to the weight and height of the contact.

Hair.—A fairly accurate statement relative to hair style, length, and color usually can be obtained. Peculiarities of hair dress frequently offer fairly reliable clues. We have seen cases located by address and the fact that the contact dyed her hair. Another case in a small town was found where the only definite information was "a red-haired colored girl."

Teeth.—Descriptions of abnormalities in teeth (such as gold or missing teeth) may furnish additional clues.

Eyes.—If a boy or girl has visual defects severe enough to wear glasses on a date, the chances are that the same type of spectacles will be worn when the investigator makes his call. Ask about squints, ptoses, etc.

Posture and physical defects.—This lead again is most useful if there is some marked variation from the normal. Men particularly will hesitate to say a contact had a withered left leg or only one arm, unless the question is asked specifically.

Tattoo.—Seldom is tattooing used in epidemiology. Like physical defects, teeth and glasses, however, it may lead to identification. Probably this information will not be volunteered by the patient, but can be brought out only by asking the question specifically.

Dress.—We have not found descriptions of clothing useful in tracing contacts unless the contact is known for certain peculiarities in dress which are outstanding. A uniform of some distinctive type may be most useful for identification purposes.

Background of the contact

The background of the contact can also serve as an important factor in identification of contacts when other clues are missing. Apparently the patient during his meeting with the contact often learns something concerning the nature and place of employment, marital status, number and ages of children, and residence of the contact.

We remember one case in which a white female was met while the patient was drunk and all that he could remember was that she had a 5-year-old boy with a broken leg in the local hospital. This clue was run down and the contact was easily located and found to be infected.

Men are quite reluctant to reveal the name of a married woman for fear of repercussions from the husband, should he learn of his wife's adultery. Therefore, the interviewer expects a certain loss in securing contacts when the suspect is married. It is advisable here to reassure the patient of the privacy of the information he is about to give.

The length of time a patient has known his contact is of considerable importance and lends insight into the validity of other statements. The type of contact may well be anticipated by this information. If a man has known his contact for 6 months and does not know her real name or her address, a married woman who is concealing her identity might suspected.

Circumstances of exposure

Forgotten details concerning the pla and circumstances of exposure may recalled if the interviewer diligently see them out. Some such questions mig be asked: "Where did you meet?" "D you have anything to drink?" "Where d you buy it?" "Who introduced you "Did you give or receive any money gifts?" "Where did the actual exposu take place?"

Some information relative to stores, fi ing stations, neon lights, etc., may lea the investigator to an otherwise unknow location. The patient is encouraged make a diagram and to give informati relative to outstanding bits of archite ture. Other minor details might be r called if the following questions a asked: "Was the house frame or brick "What color was it?" "Did it have a fro porch?" "Was there a porch swing "Did the yard have a hedge or fence?"

Suspects

Men and particularly teen-age boys fr quently go about in pairs or groups a make pick-ups. With this in mind, o may be able to elicit a venereal disea suspect of the same sex as the patien although there was no direct sexual e posure to each other. The two may ha been exposed to the same girl; and eve if exposed without prophylaxis to diffe ent girls, the possibility of infection sufficiently great to warrant investig tion. This is also true of women, b multiple exposures by women are mo difficult to elicit than in men. Again v mention exposures through perversio and suggest the interviewer make opening so the patient can talk witho embarrassment.

It is often stated that males infect with gonorrhea almost always seek trea ment voluntarily and more cases could found by asking promiscuous girls wh their girl friends are than by asking the about their sexual contacts. Birds of

ither do flock together, and it has been
served by one of us in a series of 200
ses that the incidence of infected indi-
luals among these "birds of a feather"
spects is two times that among their
le friends. As pointed out by Hazel-
rst et al. (*8*) one is very likely to get
lse information in these cases when
tients turn in their enemies. One is
o likely to get false information regard-
g sexual contacts. We think the infor-
tion should be sought out and evalu-
ed on an individual basis. If the inter-
ewer suspects fraud, it can be judged as
ch. In all cases the investigating agen-
s should be notified on the epidemio-
gic report form that this is a venereal
sease suspect (a nonsexual contact),
d the case will be handled according
the prevailing local situation. These
nereal disease suspects of the same sex
ve one distinct advantage, and that is
t the address and name and descrip-
n of the suspect are practically always
own.

mily contacts

Family contacts other than sexual ones
e of value in finding cases, and as an
junct in case holding. But this method
not too effective in finding infectious
nereal disease. Obviously, special at-
tion should be given to parents of
genital syphilitic infants. It should
made clear on the epidemiologic re-
rt form that this is a family contact.
selected situations it is advisable to
estigate an entire family when one of
youngsters or the parent is found to
ve a venereal disease. Certainly it is
visable to investigate the family if one
the children is found to have congenital
philis.

se holding

Since many clinics still do not have
cess to hospital treatment facilities and
rtain types of cases have not generally
en accepted for intensive therapy, it is
cessary for the interviewer to be fa-
liar with case-holding methods. As
atment is developed and budgets al-
ed, it is entirely conceivable that short out-patient treatment schemes will result. This, of course, will call for greater intensification in case holding.

Gillick and his associates (*9*) have shown "a significant difference between the routine (once a week) and intensive out-patient schemes of treatment with respect to the number of patients who complete treatment. Only 25 percent of those on intensive (out-patient) schedules lapse after the first injection, as compared to 40 percent on routine schedules. It would seem, therefore, that it is advisable to require two or more clinic visits a week for the first few weeks even of patients on routine therapy." If the contact is located, found positive, and brought under treatment, but the informant for this contact lost, nothing is gained. If the patient is asked to explain lapses in treatment an avalanche of different excuses follows. The medically educated person realizes that it is therapy and not excuses that produces a cure. The interviewer should explain this to the patient and see that he understands it. The practice of reinterviewing the patient some 3 to 4 weeks after beginning treatment is a good one, and frequently many difficulties can be ironed out and names of additional contacts obtained.

In cases treated intensively, either as a hospital or as an out-patient procedure, the need for regular follow-up visits to the doctor or clinic cannot be overemphasized. The treated early syphilitic must be advised to return to the clinic or doctor at once should he note evidence of new lesions. In case of relapse or reinfection the patient can be re-treated, but the contacts not brought under treatment are not so fortunate.

Closing the interview

Re-emphasize, as stated by Ingraham (*10*), to the patient that he or she is one of the key people in the venereal disease control program and that the information given in this interview is indeed worth while. The interview should be closed in a friendly tone regardless of whether contact names are obtained or not. Even if no contacts are disclosed, it is entirely possible that the patient may return and give this information in a subsequent visit if the parting is in a good spirit. Emphasize to the patient that he or she may return for counsel at any time. Make sure the interviewer's name and how he or she may be reached is understood.

References

1. Garrett, A.: Interviewing; Its Principles and Methods. Family Welfare Association, New York, 1942.
2. Ingraham, L. B.: The persuasive approach with the infectious syphilis carrier. A study in public health method. J. A. M. A., 107: 1990–1995, 1936.
3. Palmer, E.: The nurse's responsibility in the venereal disease clinic. Papers on Social Hygiene, New York Tuberculosis and Health Association, New York, 1941. Pp. 36–40.
4. Whitehorn, J. C.: Guide to interviewing and clinical personality study. Arch. Neurol. & Psychiat.: 52, 197–216, 1944.
5. Stokes, J. H.: Functional neuroses as complications of organic disease; an "office" technic of approach with special reference to the neuro-dermatose J. A. M. A., 105: 1007–1013, 1935.
6. O'Leary, A.: A handbook of suggeste Procedure for Nurses in Venereal Di ease Clinics. Mimeographed. Pu lished by Iowa State Department Health, Division of Venereal Diseas Control, Des Moines, Iowa, 1941.
7. Hinrichsen, J.: The importance of knowledge of sexual habits in the dia nosis and control of venereal diseas with special reference to homosexu behavior. Urol. & Cutan. Rev., 48 469–486, 1944.
8. Hazelhurst, W. D.; Stevick, C. P Kahn, H. A.: Preliminary repo evaluating the worth of obtainin names of suspected contacts during regular contact interview. J. Ven. Di Inform., 27: 65–68, 1946.
9. Gillick, F. G.; Stubbs, D.; Swank, R The significance of the first lapse i out-patient venereal disease clinic J. Ven. Dis. Inform., 26: 198–20 1945.
10. Ingraham, L. B.: The treatment of syp ilis: The patient's problem. Am. Syph., Gonor., & Ven. Dis., 22: 224 230, 1938.

The Rural Public Health Nurse in Venereal Disease Control

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Before describing the work of the rural public health nurse in venereal disease control, it is well to summarize some of the conditions characteristic of rural areas.

The rural picture

The vast areas of rural territory in which approximately 44 percent of the Nation's population reside encompass thousands of small towns and villages, and countless isolated farms and ranches situated many miles from the nearest town or railroad.

The population includes a great diversity of racial and cultural groups with their own peculiar problems. A high percentage of farm families are in the low-income group. In certain sections of the country living conditions are ofte deplorable and many of the homes a mere shacks, with no sanitary faciliti of any kind. Social activities in man rural sections consist of meetings of t Parent Teachers' Association, chur groups, and farm gatherings. Urge welfare services are often donated b neighbors, as local welfare agencies a almost entirely lacking. Some profe sional service may be given by coun or State agencies, but it is usually li ited.

Rural health conditions

The health of the rural populati merits the concern of the Nation. Mo bidity and mortality rates for some di eases are higher than for urban area

his is no doubt due in large part to
e lack of medical and health facilities.
here are 1,200 rural counties in the
nited States without any recognized
spitals and 1,133 without public health
rsing services. A scarcity of physi-
ans, dentists, and other health workers
evails.

The prevalence of venereal diseases in
ral areas as shown by serologic tests of
lectees during World War II was only
ghtly less than for the urban area.
agnostic and treatment facilities may
entirely lacking or located at consid-
able distance and may be unknown to
ny persons who may need treatment
r venereal disease.

he rural public health nurse

The rural public health nurse's activi-
es are varied; she carries on work in
ternal and child hygiene, communica-
e disease control including tuberculosis,
d school health. Her functions are pre-
ntion and control of disease and health
aching with emphasis on the mainte-
nce of general good health. Care of the
k in the homes is given and demon-
rated when the need arises. It is recog-
zed that a qualified public health nurse
n include in her generalized program
the public health nursing services that
y one family needs, including venereal
ease control activities. There are
out 7,000 rural nurses employed
roughout the country and approxi-
tely 67 percent are employed by health
partments or other official agencies.
re is a large reservoir of nurses who
n contribute much to the control of
nereal disease when their functions are
tter understood and more closely inte-
ted with the program.

The rural nurse is in a strategic posi-
n to include the venereal disease pro-
am in her daily activities. She covers
fairly large territory and has given
vice of one kind or another to many
rsons. Through her interest and as-
tance in health and social problems, she
s gained their confidence and developed
ir trust in her. There can be constant
relation and integration with the other
health services of the public health nurse such as maternity and child health, communicable disease control including tuberculosis, and school health.

Venereal disease case finding in a generalized nursing program

The Jones family presents an excellent example of the way in which the rural nurse can serve in the venereal disease program.

The local physician asked the nurse to give care to Mr. Jones, who had been injured while harvesting. On a visit to the home, the nurse was demonstrating to Maude, the 18-year-old daughter, the technic of applying hot packs to her father's leg. Suspicious lesions were observed in the palms of Maude's hands. When the nurse completed the demonstration, she invited Maude into the next room on the pretense of securing her further assistance. Actually, the intention was to get an opportunity to discuss the lesions with Maude. Maude gave a history of a genital lesion a few weeks previously, but had not sought medical care. She was apprehensive about the nurse's questioning but finally was convinced that she should have a medical examination. The physician whom she visited made a diagnosis of secondary syphilis and recommended rapid treatment at the county hospital. The nurse assisted in making the arrangements.

Investigation revealed that the boy on a neighboring farm was her only sexual contact. Maude was fearful about the nurse visiting the young man, as their fathers were on friendly terms. After the nurse explained her method of making the visit without the parents learning of the boy's condition, Maude offered to arrange for the interview between them. When the nurse saw the young man she informed him of his probable infection and the need for medical examination. The boy visited a physician in an adjoining town and was diagnosed as early latent syphilis and placed under treatment. The nurse was informed of the boy's previous contact by the physician. This girl, from whom he acquired his infection, lived in another town and she was referred to the health department there for investigation.

Maude's father and a baby sister also were examined by the physician who was attending the father because of his injury. This seemed desirable since Maude had open lesions on the palms of her hands and had given care to both of them. Skillful handling was necessary in carrying through the contact investigations and in arranging for medical examination and treatment in order to protect Maude and the young man.

Another case-finding activity of the nurse is illustrated in a prenatal case.

The nurse was making a visit to the owner of a farm about the health of one of his children. Mr. and Mrs. Brown had recently moved to this farm as tenants. Mrs. Brown was 7 months pregnant, was not under medical care, and for this reason was referred to the nurse by the owner. The nurse gave Mrs. Brown prenatal instructions and, while talking with her, noted she had a suspicious looking rash on her arms and hands. Mrs. Brown stated she had had the rash about 2 weeks. The nurse urged medical care, not only for the rash but also for prenatal examination. The husband agreed to take her to a physician the next day. In the meantime, the nurse called at the physician's office to tell him of Mrs. Brown's expected visit and to offer her assistance. A short time later, the physician informed the nurse that Mrs. Brown was found to have secondary syphilis and should receive treatment and that Mr. Brown was infected and should have treatment, too. The physician asked the nurse to make arrangements for both to be admitted to the rapid treatment center. Thereupon the nurse visited the home and found the Browns much disturbed over their condition and the difficulty of obtaining treatment without the knowledge of the employer and his family. The nurse helped the Browns to understand their disease and explained the possible plans for treatment. They consented to go to the rapid treatment center and made arrangements "to visit out of town." The nurse assisted in planning transportatio and admittance to the rapid treatmen center.

Contact investigation revealed tha the husband had had an "affair" abou 6 months prior to moving to the farn He gave a history of a penile lesion, late followed by a slight rash which hadn concerned him enough to seek medica attention. The contact's name and ac dress were obtained and referred for i vestigation to the health department c the area in which she lived. It wa learned later that the contact was e amined and found infected. In this on situation three cases of early syphili were discovered and a baby was saf guarded from syphilis.

Even in the child health program, case of venereal disease are sometimes di covered.

During a health supervision visit to 6-week-old baby the nurse discovere that the infant had snuffles and an eru tion around the mouth, on the palms c the hands, and on the soles of the fee On a visit 4 weeks previously the bab had appeared normal. The nurse ac vised medical care immediately. Th parents took the baby to the local ph sician who diagnosed the condition a early congenital syphilis. The infa was admitted to the general hospital fo rapid treatment. Both parents als were found to be infected and treatme was instituted by the private physicia Contact investigation revealed two se ual contacts of the father.

A visit to a rural school revealed tha Dick, 12 years of age, was having troubl with his eyes as reported by the teache Upon inspection, the nurse found the eye inflamed and sensitive to light. Sh visited the boy's parents to discuss hi condition and to urge immediate medica attention. Dick was diagnosed by th family physician as having congenita syphilis with interstitial keratitis an was placed under treatment before visio was impaired. Upon investigation, th mother was found to have late laten syphilis and one of Dick's sisters had co genital syphilis. The local physician as imed the responsibility for treatment f all three.

Many additional instances could be ted as examples of how an alert public ealth nurse can contribute to venereal isease case finding through her general- ed nursing program. The rural nurse as opportunities for giving specific infor- ation about the venereal diseases them- lves as well as treatment facilities and e new types of treatment. As a result f the dissemination of such knowledge, ore and more individuals are voluntar- y seeking medical care if they think they ave acquired a venereal disease infec- on. It is not unusual for the rural nurse be sought for advice when a person spects an infection.

ontrol program and the nurse

Penicillin treatment has tended to ange the venereal disease clinics from nters for administering long-term treat- ent of syphilis to centers for diagnosis syphilis and treatment of gonorrhea. yphilis patients, especially those who ave the disease in an infectious stage, e referred for intensive therapy to rapid eatment centers or to general hospitals hich provide in-patient treatment on a d-contract basis. Practically all States 41) now have one or more such facilities.

In many rural areas, clinics are not ailable and the responsibility for medi- l services falls upon the local practicing ysician. However, for the treatment of rly syphilis, the rapid treatment facili- s are available to him. In venereal sease control, the cooperation of the cal physician is essential if the program to succeed. It is through his services at the public health nurse has an enue for medical assistance. In refer- g venereal disease patients or suspects the physician, she also has an excel- nt opportunity for establishing a good rking relationship with him as well as terpreting her functions in the venereal sease control program. As the value of e public health nurse's role is better derstood by the private physician he ll increasingly utilize her services in e follow-up of contacts of his cases. If clinics are held, usually the local physician serves as clinician with the public health nurse assisting. This offers the nurse opportunities to carry on educational activities and contact investigation for case-finding purposes with the patients coming to the clinic.

She often investigates contacts or suspects along with her generalized nursing program. If she knows her area fairly well she meets with considerable success in locating persons where there is meager information as to who they are or where they live. The technic of approach to venereal disease contacts or patients is much the same as in other health services. In rural areas where the activities of the people are well known, the nurse must devise ways of safeguarding knowledge of the patient's condition. She can help these persons adjust to their diagnoses and assist them in their plans for carrying through the prescribed treatment. The patient's general health should be considered as this may have an important bearing on his attitudes and cooperation.

Education

The rural nurse is often invited to attend farm gatherings, Parent Teachers' Associations, and other group meetings. Through these avenues she has an excellent opportunity for giving the rural people a knowledge and understanding of the venereal diseases and promoting a healthy interest in them. Also, by interpreting the factors which have a bearing on the problem, encouragement can be given to these community groups to take the initiative in fostering proper home environment and wholesome activities for youth.

In her direct contact with homes and schools, there are opportunities for helping in the promotion of character building, including sex education. Parents and teachers are interested in reading material and guidance in dealing with youth.

Utilization of community resources

Lay health committees are usually organized to support and assist the nurse in her health program and in promoting interest in the health needs of the area. The members can be of inestimable help in supporting a venereal disease control program if they are well informed. Their efforts can be utilized in stimulating interest in good health centers and treatment facilities for venereal diseases. Where rapid treatment centers are not available, this group can interest the county hospital in establishing facilities on a bed-contract basis.

Some rural sections that in the past have had no particular venereal disease problem are now confronted with it as a result of migration during the war period. Every socially minded group should have a knowledge of the facts and accept responsibility in combating venereal disease. The Farm Extension Service of the Department of Agriculture in a recent report[1] has recognized the health needs of the rural people and set up definite objectives on which to work. This is far-reaching agency that can assist materially in a venereal disease control program. The rural public health nurse ha an important role in interpreting th needs and soliciting active support from these groups.

Summary

The rural area serves as a definit challenge to the well-qualified publi health nurse in carrying on a nursin program which includes venereal diseas control. The public health nurse wh studies the characteristics, customs, an attitudes of the rural population will no only render satisfactory service but wil find in such study stimulation of resourcefulness and ingenuity from which sh will profit. With understanding and th desire to render service to individual who have acquired a venereal disease sh is making a real contribution to th health and welfare of the rural population. This she could not do without th assistance and support of the local practicing physician, the lay health committee, and the other interested groups

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[1] Anderson, E. L.: The Extension Service's Responsibility in Aiding Rural People to Improve Their Health and Medical Services. U. S. Dept. of Agriculture Extension Service, Washington 25, D. C., July 1946.

Rapid Treatment Centers and Hospitals Providing In-Patient Treatment for Venereal Diseases

Listed below are 35 rapid treatment nters for the treatment of syphilis and norrhea (located in 24 States and the istrict of Columbia) and general hostal facilities for in-patient treatment of nereal diseases (in 23 States and the rgin Islands), officially sponsored by deral, State, or local health agencies. cilities operated exclusively for the pid treatment of venereal diseases are marked with an asterisk (*). Where no specific hospitals are listed, information concerning locations may be obtained from State health departments. Inquiries regarding treatment of patients should be sent to State, county, or city health departments, not addressed to hospitals.

Announcement of changes will be published in the Journal of Venereal Disease Information.

abama:

Birmingham 6, Ala.
Mid-South Medical Center (State)
P. O. Box 3027, Avondale Station
(Located at the Station Hospital, Birmingham Army Air Base)

izona:

Patients treated at St. Monica's Hospital, 1200 South Fifth Avenue, Phoenix.

Address Arizona State Department of Health, Phoenix.

kansas:

Hot Springs National Park, Ark.
U. S. Public Health Service Medical Center (Federal)

lifornia:

Los Angeles 33, Calif.
View Crest Hospital (County)
900 North Hazard Avenue

Patients treated at local hospitals throughout State.

Address California State Department of Public Health, San Francisco.

San Diego:

Patients treated at San Diego County General Hospital, Front and Dickenson, San Diego 3.

Address Dr. Alex M. Lesem, Director of Health, County of San Diego, San Diego.

Colorado:

Denver 4, Colo.
Denver General Hospital (State)
*Rapid Treatment Center
Sixth and Cherokee Streets

Connecticut:

Patients treated in general hospitals throughout State (see list below).

- McCook Memorial Hospital, Hartford.
- Saint Francis Hospital, 114 Woodland, Hartford 5.
- Manchester Memorial Hospital, 71 Haynes, Manchester.
- Meriden Hospital, 181 Cook Avenue, Meriden.
- Middlesex Hospital, 28 Crescent, Middletown.
- Milford Hospital, Bridgeport Avenue, Milford.
- New Britain General Hospital, 92 Grand, New Britain.
- Hospital of St. Raphael, 1450 Chapel, New Haven 11.
- Grace Hospital, 1418 Chapel, New Haven 11.
- New Haven Hospital, 789 Howard Avenue, New Haven 4.

Address Connecticut State Department of Health, Hartford.

Delaware:

Patients treated at State Welfare Home, Dover.

Address Delaware State Board of Health, Dover.

District of Columbia:

Washington 25, D. C.
*Venereal Disease Rapid Treatment Center (D. C.)
Gallinger Municipal Hospital
19th and Massachusetts Avenue SE

Georgia:

Alto, Ga.
*Alto Medical Center (State)

Idaho:

Boise, Idaho
*Rapid Treatment Center (State)
P. O. Box 2637
(Located in State Soldier's Home.)

Illinois:

Chicago, Ill.
*Chicago Intensive Treatment Center (City)
2449 South Dearborn Street
Address:
Dr. Herman N. Bundesen
President, Chicago Board of Health
54 West Hubbard Street
Chicago 10, Ill.

Patients treated in general hospitals in State, except an area within a 50-mile radius of Chicago and St. Louis (see list below).

Mennonite Hospital, 809 North Main, Bloomington.

St. Mary's Infirmary, 2025 Walnut, Cairo.

Graham Hospital, 210 West Walnut, Canton.

Champaign County Hospital, Champaign.

Burnham City Hospital, Champaign.

Lake View Hospital, 812 North Logan Avenue, Danville.

Decatur and Macon County Hospital, North Edward and Hay Streets, Decatur 10.

Galesburg Cottage Hospital, 674 North Seminary, Galesburg.

Illinois—Continued

St. Mary's Hospital, 239 Sout Cherry, Galesburg.

Herrin Hospital, Herrin.

St. Mary's Hospital, 192 South Fift Avenue, Kankakee.

St. Mary's Hospital, 1015 O'Conno Avenue, LaSalle.

Vickers Memorial Hospital, M Leansboro.

Memorial Methodist Hospital, 210 Richmond Avenue, Mattoon.

St. Francis Hospital, 530 North Oa Street, Peoria 4.

Peoples Hospital, Peru.

St. Mary's Hospital, 1400 Broadwa Quincy.

Blessing Hospital, 1000 Sprin Quincy.

Winnebago County Hospital, Nort Main Road, Rockford.

St. John's Hospital, Seventh an Mason Streets, Springfield.

Address Illinois State Department o Public Health, Springfield.

Indiana:

Indianapolis 7, Ind.
*Public Health Center (City)
1140 East Market Street

Iowa:

Patients treated at local hospitals i 6 cities of State (see list below)

Mercy Hospital, 610 North Fourth Burlington.

Mercy Hospital, 420 East Washington, Council Bluffs.

Scott County Isolation Hospital, Davenport.

Broadlawns Polk County Hospital Eighteenth and Hickman Road Des Moines.

State University of Iowa Hospitals Iowa City.

St. Joseph Mercy Hospital, Twenty-first and Court, Sioux City 19.

Address Iowa State Department of Health, Des Moines.

ansas:

Patients treated at local hospitals in State (see list below).

Mercy Hospital, 801 North First, Arkansas City.

Newman Memorial County Hospital, Twelfth and Chestnut, Emporia.

Grace Hospital, 1724 North Main, Hutchinson.

St. Elizabeth's Mercy Hospital, 500 West Street, Hutchinson.

Mercy Hospital, 816 West Myrtle, Independence.

Douglass Hospital, 336 Quindaro Boulevard, Kansas City.

University of Kansas Hospitals, Thirty-ninth and Rainbow Boulevard, Kansas City.

Lawrence Memorial Hospital, 325 Maine, Lawrence.

Cushing Memorial Hospital, 623 Marshall, Leavenworth.

St. John's Hospital, 630 Kiowa, Leavenworth.

St. Mary's Hospital, Eleventh and Osage, Manhattan.

Mercy Hospital, East Chess Street, Parsons.

Christ's Hospital, Tenth and Washburn, Topeka.

St. Francis Hospital, 928 North Emporia Avenue, Wichita 5.

Sedgwick County Hospital, 3201 West Douglas, Wichita.

St. Mary's Hospital, 1519 East Ninth, Winfield.

William Newton Memorial Hospital, Winfield.

ddress Kansas State Board of Health, Topeka.

ntucky:

ouisville, Ky.
apid Treatment Center (State)
ouisville City Hospital
23 East Chestnut Street

entucky Treatment Center (State)
tate Fair Grounds
20 South Third Street

Louisiana:

New Orleans 13, La.
*Delgado Memorial Hospital (State)
1534 Tulane Avenue

Pineville, La.
*Quarantine Hospital (State)
P. O. Box 152

Maine:

Patients treated at local hospitals in State (see list below).

Central Maine General Hospital, 300 Maine, Lewiston.

St. Mary's General Hospital, 318 Sabbatus, Lewiston.

Maine Eye and Ear Infirmary, 79 Bramhall, Portland 4.

Maine General Hospital, 22 Arsenal, Portland 4.

Sisters' Hospital, Highwood, Waterville.

Address Maine State Bureau of Health, Augusta.

Maryland:

Baltimore 24, Md.
*Rapid Treatment Center (City)
Baltimore City Hospitals
4940 Eastern Avenue

Patients treated in local hospitals in Allegany, Calvert, Cecil, Charles, Frederick, Kent, St. Marys, Washington, and Wicomico Counties

Address Maryland State Department of Health, Baltimore.

Massachusetts:

Patients treated in general hospitals in State.

Address Massachusetts Department of Public Health, Boston.

Michigan:

Ann Arbor, Mich.
*Michigan Rapid Treatment Center (State)
1135 East St. Catherine Street

Patients treated at Herman Keifer Hospital, 1151 Taylor, Detroit 2.

Address Michigan Department of Health, Lansing.

Minnesota:

Patients treated at Minneapolis General Hospital, 619 South Fifth, Minneapolis 15.

Address Dr. F. J. Hill, Commissioner of Health, City Division of Public Health, 401 City Hall, Minneapolis 15.

Mississippi:

Brookhaven, Miss.
*U. S. Public Health Service Medical Center (State)
P. O. Box 272

Greenwood, Miss.
*Delta Medical Center (State)
P. O. Box 937

Meridian, Miss.
*Meridian Public Health Treatment Center (State)
Key Field
P. O. Box 190

Missouri:

St. Louis 18, Mo.
*Midwestern Medical Center (Federal)
3630 Marine Avenue

Patients treated at St. Louis City Hospital, 1515 Lafayette Avenue, St. Louis 4. (Early congenital syphilis only.)

Address Dr. F. M. Grogan, Hospital Commissioner, St. Louis.

Nebraska:

Patients treated at Douglas County Hospital, Fortieth and Poppleton Avenue, Omaha 5.

Address Nebraska Department of Health, Lincoln.

New Jersey:

Patients treated at Medical Center, Jersey City, and general hospitals in State.

Address New Jersey State Department of Health, Trenton.

New Mexico:

Albuquerque, N. Mex.
*New Mexico Intensive Treatment Center (State)
1305 East Gold Avenue

New York:

Patients treated in up-State hospitals exclusive of New York City.

New York City:

Patients treated at Bellevue Hospital, First Avenue and Twenty-sixth Street, New York 16.

Address New York State Departmen of Health, Albany.

North Carolina:

Charlotte, N. C.
*Western Medical Center (State)
Morris Field Hospital
P. O. Box 1968

Durham, N. C.
*Eastern Medical Center (State)
P. O. Box 1729

Ohio:

Columbus, Ohio
*Central Ohio Rapid Treatment Cente (State)
P. O. Box 539
Lockbourne Air Base

Patients treated at contract hospital (see list below).

City Hospital of Akron, 525 Eas Market, Akron 4.
Children's Hospital, Akron.
Cincinnati General Hospital, 323 Burnet Avenue, Cincinnati 29.
Cleveland City Hospital, 3395 Scranton Road, Cleveland 9.
St. Vincent Charity Hospital, Cleveland 15.
University Hospital, Columbus.
Quarantine Hospital, Dayton.
St. Elizabeth's Hospital, 1044 Belmont Avenue, Youngstown 4.
(Others as indicated.)

Cleveland:

Patients treated at Cleveland Cit Hospital, 3395 Scranton Road Cleveland 9.

Address Ohio Department of Health Columbus.

Oklahoma:

Oklahoma City, Okla.
*The Oklahoma Medical Center (State)
Will Rogers Field

egon:

Patients treated at City Isolation Hospital, 1905 Southeast Powell Boulevard, Portland 6.

Address Oregon State Board of Health, Portland.

nnsylvania:

Philadelphia 7:

Patients treated at general hospitals in Philadelphia.

Address Dr. Rufus S. Reeves, Director, Department of Public Health, City of Philadelphia, 503 City Hall Annex.

Pittsburgh:

Patients treated at Municipal Hospital for Contagious Diseases, Terrace and Darragh, Pittsburgh 13.

Address Dr. I. H. Alexander, Director, City Health Department, Pittsburgh.

uth Carolina:

Florence, S. C.
South Carolina Public Health Hospital (State)
c/o General Delivery
Florence Army Air Base

uth Dakota:

Patients treated in general hospitals in State (see list below).

St. Luke's Hospital, 305 South State Street, Aberdeen.
Sprague Hospital, 450 Dakota Avenue, South, Huron.
Madison Community Hospital, 900 North Washington Avenue, Madison.
Methodist State Hospital, 909 South Miller, Mitchell.
St. Joseph's Hospital, 1209 East Fifth Avenue, Mitchell.
St. Mary's Hospital, 803 Dakota Avenue, Pierre.
Black Hills General Hospital, 803 South Street, Rapid City.
St. John's McNamara Hospital, 1018 Eleventh Street, Rapid City.
McKennan Hospital, Seventh Avenue and Twenty-first Street, Sioux Falls.

South Dakota—Continued

Sioux Valley Hospital, 1123 South Euclid Avenue, Sioux Falls.
Luther Hospital, 420 Fourth Street NE, Watertown.

Address South Dakota State Board of Health, Pierre.

Tennessee:

Chattanooga 6, Tenn.
*East Tennessee Medical Center (State)
Route 2, Box 501

Memphis 12, Tenn.
*West Tennessee Medical Center (State)
c/o Shelby County Hospital

Texas:

El Paso, Tex.
*Mountainview Hospital (State)
2827 Louisiana Avenue

Overton, Tex.
*Rocky Mount Hospital (State)
P. O. Box 877

San Antonio, Tex.
*Mission Medical Center (State)
P. O. Box 1738
East Kelly Field, Camp Normoyle

Waco, Tex.
*Rapid Treatment Center (State)
Riverside Hospital
P. O. Box 1512

Utah:

Patients treated at Salt Lake County General Hospital, 2033 South State, Salt Lake City 5.

Address Utah State Department of Health, Salt Lake City.

Vermont:

Patients treated in any Vermont hospital.

Address Vermont Department of Public Health, Burlington.

Virginia:

Norfolk 1, Va.
*Hampton Roads Medical Center (Federal)
P. O. Box 749
Forty-Second and Powhatan Avenue

Virginia—Continued

Richmond 20, Va.
*Rapid Treatment Center (City)
108 West Cary Street

Virgin Islands:

Patients treated at municipal hospitals in St. Thomas and St. Croix.

Address Dr. Knud Knud-Hansen, Commissioner of Health, Charlotte Amalie.

Washington:

Seattle, Wash.
*The Washington Infirmary (State)
P. O. Box 3143
(Located at Payne Field near Everett, Building T–1306)

West Virginia:

South Charleston 3, W. Va.
*Kanawha Valley Medical Cent
(State)
151 Twelfth Avenue

Wisconsin:

Madison:

Patients treated at State of Wisco sin General Hospital, 1300 Ur versity Avenue.

Address Wisconsin State Board Health, Madison.

Milwaukee:

Patients treated at South View Ho pital, 2320 West Mitchell Stre

Address Dr. E. R. Krumbiegel, Co missioner of Public Health, Ci Health Department, Milwaukee.

CURRENT LITERATURE

NOTE: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the past 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

I. J. M. TECHNOL, DETROIT

n experimental evaluation of the Mazzini slide test. Margaret M. Davis. 12 : 100–103, May 1946.

I. J. OBST. & GYNEC., ST. LOUIS

The persistence of the gonococcus in the female adnexa. Alfred Cohn, Isaak Grunstein and C. E. Heaton. 52 : 83–88, July 1946.

I. J. SYPH., GONOR. & VEN. DIS., ST LOUIS

symptomatic neurosyphilis: a review of the literature. Richard D. Hahn and E. Gurney Clark. 30 : 305–316, July 1946.

*The clinical significance of quantitative serologic tests for syphilis. Evan W. Thomas. 30 : 317–329, July 1946.

eurosyphilis in younger age groups. An analysis of clinical findings, laboratory studies, and malaria therapy. Sidney Scherlis and Charles M. Caravati. 30 : 330–341, July 1946.

Merthiolate (sodium ethyl mercuri thiosalicylate) as a preservative in sera for the serodiagnosis of syphilis. Charles R. Rein and Hilfred N. Bossak. 30 : 342–343, July 1946.

Semantic confusion and resolution in the concepts of cure in syphilis and of reinfection with syphilis. Morris Leider. 30 : 344–351, July 1946.

ensitivity of Hemophilus ducreyi to antibiotic and other substances in vitro. Franco Mortara and Margaret T. Saito. 30 : 352–360, July 1946.

Observations on chancroid therapy with and without sulfathiazole. Vernon C. Harp. 30 : 361–367, July 1946.

ulfathiozole prophylaxis for gonorrhea and chancroid among soldiers in the Caribbean area. Daniel Bergsma. 30 : 368–380, July 1946.

echniques accentuating efficiency and speed in gonococcus culture work. George M. Cameron and Ruth Castles. 30 : 381–385, July 1946.

omparative study of media for the primary isolation of the gonococcus. Thomas H. Weller and John E. Williams. 30 : 386–392, July 1946.

The clinical significance of quantitative serologic tests for syphilis. Evan W. Thomas. Am. J. Syph., Gonor. & Ven. Dis., St. Louis, 30: 317–329, July 1946.—The author presents a survey of 5 years' experience at Bellevue Hospital with quantitative serologic tests for syphilis (STS). Reagin is not detectable in the blood of syphilitic patients before the sixth to eighth week after infection, increasing rapidly to a peak in the secondary stage and then decreasing until a fairly stable level is established in the latent stage. In general, the longer a patient has had syphilis the longer the time required for the STS to become negative after successful treatment.

Rapid treatment for early syphilis was started at Bellevue Hospital in December 1939; patients observed for more than 1 year were divided into four groups: (1) those treated with mapharsen alone for 6 to 10 days; (2) those treated with mapharsen and typhoid vaccine fever for 7 to 10 days; (3) those treated with 600,000 Oxford units of penicillin in doses of 10,000 Oxford units injected intramuscularly every 3 hours for 60 doses; and (4) those treated with 1,200,000 units of penicillin in doses of 40,000 O. u. injected intramuscularly every 6 hours for 30 doses. The majority of patients were in the second group.

In all treatment groups, patients with seropositive primary syphilis become seronegative sooner than those in the secondary stage. In this seropositive primary group, patients with complement fixation titers of less than 50 at the beginning of treatment became as a rule seronegative within 2 months. However, patients with titers of over 300 often became seronegative sooner than those with lower titers. The author feels that persistence of a positive STS for many months after rapid treatment probably is due to the continued formation of reagin by body cells. Cells stop producing this substance at varying times in different individuals. None of the patients with low STS titers 1 year after treatment had a positive spinal fluid after 1 year; thus it is evident that prolonged low STS titers following rapid treatment for early syphilis do not, as a rule, indicate failure of treatment.

In late latent syphilis, sharp rises in posttreatment STS titers, confirmed by repeated tests, indicate the need for further treatment; as long as a gradual trend downward exists, however, no further treatment is usually necessary.

Among patients with neurosyphilis, no correlation was found between the height of the blood complement fixation titer and the severity of the disease or between the complement fixation titers of the blood and spinal fluid. It is claimed that the cells and protein in a spinal fluid are a better guide to the activity of the syphilitic process in the central nervous system than are quantitative spinal fluid complement fixation tests, although the latter are unquestionably helpful in observing patients after treatment. Among re-treated patients in this study, there was seen a definite correlation between the complement fixation titer of the spinal fluid and the continued presence of increased cells and protein some months after treatment.

Merthiolate (sodium ethyl mercuri thiosalicylate) as a preservative in sera for the serodiagnosis of syphilis. Charles R. Rein and Hilfred N. Bossak. Am. J. Syph., Gonor. & Ven. Dis., St. Louis, 30: 342–343, July 1946.—The authors discuss the use of merthiolate as a bacteriostatic and bactericidal agent in the preservation of serums, antigens, vaccines, and plasma.

During the past year more than 5,000 serum specimens were received from South America, Puerto Rico, and Haiti for special serologic studies at the Arm Medical Center. One milligram of me thiolate per milliliter of serum was adde to each specimen prior to shipment. Ba terial contamination sufficient to rende serums unsatisfactory for testing deve oped in less than 0.1 percent of the speci mens.

Controlled experiments were set up t determine the effect of merthiolate, sto age, temperature, and time on serum Sets of merthiolated and nonmerthiolate serums were placed under storage cond tions of —20° C., 4° to 6° C., and roo temperature. Tubes were removed ever 3 or 4 days and inactivated at 56° for 30 minutes. Serial dilutions in salin were prepared and tested with the Klin diagnostic and exclusion tests, the Ma zini, Kahn, and Kolmer complement fix tion tests, and with an experimental m crofloculation slide procedure usin cardiolipin antigen.

The results showed that serums store at —25° C. or at 4° to 6° C. exhibited n significant reduction in titer over a perio of 6 weeks; there was also no differen between the merthiolated and nonmerth olated specimens. However, serum stored at room temperature showed marked drop in titer over the 6-wee period, but the presence of the merthi late again made no difference. The Ko mer complement fixation and the Klin exclusion flocculation tests showed les reduction in titer than did the Klin diagnostic, Mazzini, and Kahn test With the cardiolipin slide test, there wa no significant reduction in titer over period of 6 weeks regardless of the te perature at which the serums we stored.

The authors conclude that the redu tion in serologic titer often seen in store merthiolated serums can be attributed t effects of temperature rather than to an deleterious effect of merthiolate.

Semantic confusion and resolution i the concepts of cure in syphilis and o reinfection with syphilis. Morris Leide Am. J. Syph., Gonor. & Ven. Dis., S Louis, 30: 344–351, July 1946.—The que tions of cure and reinfection in syphili e discussed by the author in connection th the rapid treatment and exceedingly tent antisyphilitic agents now in use. Reinfection is taken to mean the reproction in exact replica of the whole erage course of a disease process by a w inoculation after the original infecn and its attendant phenomena have mpletely passed. Only a host who has tained a preinfected state may be reected. Superinfection, however, means production of more of a disease or an gravation of a disease process by the culation of more of the same organisms a disease that is already in progress. e author proposes the term reactivan for infections such as syphilis, in ich an immuno-allergy potential is all t remains of an infection and in which noculation does not produce reinfection superinfection.

he term "immunity" is defined as any quired, specific alteration in the caity of a host to react with an increased decreased degree of response to a new posure of a disease, following an initial posure. Immunity is taken to mean ype of resistance arising from allergy perhaps, in some instances, unrelated allergy. The allergic state, once come being and left untreated, is persistalthough it may wax, wane, and wax ain spontaneously or upon new provoion by the disease agent. While the ergic state persists, therefore, the first urse of events in an infection cannot exactly reproduced, so that reinfecn in the case of no treatment is imssible. However, parts of the syphilitic cess may be evoked by superinoculan in such an instance.

odern antisyphilitic treatment, if adnistered in sufficient quantity at an ly date, may stop the allergic process ogether or permit it to develop only a point from which it will wane and appear completely. In absolute cure, ther spirochetes nor the allergic potial remains.

t the present time, relapse, reinfecn, superinfection, and reactivation can- be distinguished from one another h sufficient accuracy for use in evaluating therapeutic agents. However, if in the future the immuno-allergic state can be easily prevented from developing or can be reversed so that reinfection is possible over and over again, then syphilis may be converted into a disease epidemiologically similar to gonorrhea, which is repeatedly infectious because it does not develop lasting immuno-allergic states. Such a conversion of syphilis into a quickly and totally curable disease will of course have new meaning for venereal disease control.

Observations on chancroid therapy with and without sulfathiazole. Vernon C. Harp. Am. J. Syph., Gonor. & Ven. Dis., St. Louis, 30: 361–367, July 1946.—In a discussion of the limitations and achievements of the sulfonamides in the treatment of chancroid, the author presents data on 350 patients seen at an Army hospital on Luzon. Three hundred of these patients were treated orally with sulfathiazole; 50 were treated only by soaking the lesions in saline solution. Chancroid was positively diagnosed by clinical or laboratory methods and the presence of other disease interfering with the course of chancroid was definitely ruled out.

The incubation period could not be determined exactly because of multiple and frequent exposures to prostitutes, but was considered to be the time from the last exposure to the appearance of the penile lesion. The site of the lesion was almost invariably in the coronal sulcus or beneath a redundant prepuce; in only 7.7 percent of the patients was the lesion on the shaft of the penis. The lesions began as small erythematous areas or vesicles which rapidly enlarged and ulcerated; multiple lesions were not uncommon. Inguinal adenitis developed in 26.0 percent of the 300 patients, the nodes usually unilateral, appearing on the average on the sixth day after the occurrence of the ulcer.

Treatment consisted of cleansing the prepuce with lukewarm salt water and administering sulfathiazole or sulfadiazine orally in doses of 1 gm. four times daily, with an initial dose of 4 gm. of the drug. Patients were kept in bed and hot packs applied to the nodes. Healing or complete epithelialization occurred in the average case on the eighteenth day after the onset of the penile lesion and on the ninth day after sulfathiazole was started—the larger the ulcer the longer the time required for healing. The number of hospital days for this group of 300 patients who were given sulfathiazole averaged 12.3 days, whereas in the group of 50 patients whose treatment consisted of saline soaks alone, hospitalization averaged 14.6 days.

Local cleanliness is emphasized as the most important therapeutic measure in the treatment of chancroid. Although most patients will recover without the aid of any therapeutic measures, it is recommended that systematic sulfonamides be used in the treatment of every patient with chancroid.

AM. J. TROP. MED., BALTIMORE

* Preliminary report on the evaluation of penicillin in the treatment of yaws. James H. Dwindelle, Charles R. Rein, Thomas H. Sternberg and Albert J. Sheldon. 26: 311–318, May 1946.

Preliminary report on the evaluation of penicillin in the treatment of yaws. James H. Dwindelle, Charles R. Rein, Thomas H. Sternberg and Albert J. Sheldon. Am. J. Trop. Med., Baltimore, 26: 311–318, May 1946.—In a discussion of the use of penicillin in yaws, the authors offer a preliminary report on 500 patients with primary and secondary yaws infections in Haiti.

These patients were divided into the three following groups:

1. Two hundred individuals were hospitalized and given 1,200,000 Oxford units of sodium penicillin in aqueous solution over a period of 4 days (30 intramuscular injections of 40,000 O. u. each, 1 every 3 hours, day and night). All patients received the same total dosage regardless of age.

2. One hundred and fifty-one patients were treated on a 2-day ambulatory basis with calcium penicillin in peanut oil wi 4.8 percent beeswax by weight. Childr 6 to 12 years of age received 600,000 O. u those 13 to 16 years of age received 90 000 O. u.; and those 17 years and ov were given 1,200,000 O. u. The penicill was given intramuscularly in doses hours apart.

3. One hundred and forty-nine patien were treated on a 1-day ambulatory ba with calcium penicillin in oil and beeswa Dosages and ages corresponded to tho in the second group but the doses we administered 10 to 12 hours apart.

Clinical improvement in the first gro was rapid; joint pains disappeared 24 to 48 hours while both primary a secondary lesions began to dry up in hours. Complete healing of all lesio was observed in most instances when t ambulatory patients of the second a third groups were seen at their fi follow-up period 3 months after trea ment.

Only 3 of the 500 patients in this stu were negative with the Kahn test pri to treatment. Three months after the apy, however, 98 percent of the patien in the first group showed definite redu tion in serologic titer (a fourfold redu tion in most instances); patients in t second and third groups showed a simil fourfold reduction in titer at the e of 3 months.

No toxic reactions were observed, a though approximately one-half the p tients in the hospitalized group show a rise in temperature to 100° to 140° shortly after the institution of trea ment. Temperatures were not taken the other two groups.

In summary, penicillin was found hold definite promise as a therapeut agent in yaws. Doses of 1,200,000 O. for adults and proportionate doses f children, given over periods of 4, 2, a 1 days, produced remarkable clinic cures. Full evaluation of the serolog results will depend upon further observ tion, however, a report on which is appear later, according to the authors.

kansas Health Bull., Little Rock

D summarizes fiscal year 1945–46. 3 : 3, Nov. 1946.

renatal protection will be asked. 3 : 1, Dec. 1946.

l. Ofic. san Panam., Washington

sáude pública no Brasil. Panorama das atividades empreendidas pelo departamento nacional de sâude. (Public health in Brazil.) João de Barros Barreto. 25 : 481–511, June 1946.

a sanidad en la República Dominicana. (Public health in the Dominican Republic.) L. F. Thomen. 25 : 673–678, Aug. 1946.

a sanidad viviente. Aristides A. Moll. 25 : 769–784, Sept. 1946.

t. J. Ven. Dis., London

he practical advantages of the Laughlen test for the diagnosis of syphilis. G. F. Laughlen. 22 : 15–20, Mar. 1946.

ociological and psychological factors in venereal disease. A. Fessler. 22 : 21–28, Mar. 1946.

he prevention of syringe-transmitted hepatitis. S. M. Laird. 22 : 29–40, Mar. 1946.

ifornia's Health, Sacramento

ommunity support needed in repression of prostitution. Control of source of venereal infections still a community problem. 3 : 137–139, May 31, 1946.

tate action to repress prostitution : 4 : 17–18, Aug. 15, 1946.

ore hospitals join rapid treatment program for syphilis. 4 : 24, Aug. 15, 1946.

renatal and premarital blood test regulations amended. 4 : 91, Dec. 15, 1946.

ad. M. A. J., Montreal.

me aspects of penicillin therapy in early syphilis. David J. MacKenzie and Norman M. Wrong. 54 : 443–445, May 1946.

ada's Health & Welfare, Ottawa

ssentials for good provincial V. D. control program. Georges Leclerc. 1 : 5, Aug. 1946.

cinnati J. Med., Cincinnati

yphilitic aneurysm). Clinical pathological conference. Cincinnati General Hospital. May 2, 1946. Eugene B. Ferris and William McKee Germain. 27 : 712–725, Oct. 1946.

orado State Board of Health Bull., Denver

olorado's laboratory approval program. W. H. Gaub. Division of Laboratories. 10 : 10–12, Apr. 1946.

Standards upon which approval of laboratories is based (for performing serological tests for syphilis in accordance with premarital and prenatal laws). 10 : 13–16, Apr. 1946.

Colorado rapid treatment center admission information. Division of Venereal Disease Control. 10 : 7–8, July 1946.

Connecticut Health Bull., Hartford

Quantitative tests for syphilis undertaken routinely in bureau of laboratories. 60 : 292, Dec. 1946.

Dermatologica, Basel

Die durch penicillin bedingten formveraenderungen des gonokokkus. (Changes in the morphology of gonococci caused by penicillin therapy). Gustav Simkovics. 93 : 183–185, 1946.

Illinois Health Messenger, Springfield

New hope for the newborn. 18 : 81–82, Nov. 1, 1946.

J. A. M. A., Chicago

Complications if intrathecal use of penicillin. Theodore C. Erickson, Mabel G. Masten and Henry M. Suckle. 132 : 561–565, Nov. 9, 1946.

Therapeutic "information please." Arthritis. Philip S. Hench. 132 : 963–982, Dec. 21, 1946.

J. Arkansas M. Soc., Little Rock

Venereal disease laws and regulations. 43 : 155–157, Dec. 1946.

J. M. A. Alabama, Montgomery

Importance of the anorectal region. (Late latent syphilis). W. J. Rosser. 16 : 198–201, Dec. 1946.

J. M. A. Georgia, Atlanta

Public health and industry. (Georgia Department of Public Health). 35 : 336–337, Nov. 1946.

J. Oklahoma M. A., Oklahoma City

Typhoid vaccine for induction of fever in neurosyphilis. Phyllis Jones and John H. Lamb. 39 : 496–502, Dec. 1946.

J. South Carolina M. A., Florence

Compulsory blood tests. 42 : 177, June 1946.

M. Ann. District of Columbia, Washington

Penicillin therapy in neurology and psychiatry. Elliot R. Reiner and George D. Weickhardt. 15 : 488–494, Oct. 1946.

PARIS MED., PARIS

Statisque annuelle de traitement préventif et curatif des erythrodermies arsenicales par les sulfamides. (Annual statistics of preventive and curative treatment of post-arsenical erythrodermias with sulfonamides). H. Gougerot, Piquet and Sclafer. 36 : 15–17, Jan. 17, 1946.

PENNSYLVANIA'S HEALTH, HARRISBURG

Prenatal blood tests up 300 percent. E. S. Everhart. 7 : 11, Oct.–Dec. 1946.

Two way attack on V. D. and T. B. Horace C. Scott. 7 : 12, Oct.–Dec. 1946.

SOUTH. MED. & SURG., CHARLOTTE

The present concept of the treatment of syphilis with penicillin. J. Lamar Callaway. Dermatology. 108 : 76–77, Mar. 1946.

UNIV. HOSP. BULL., ANN ARBOR

Revised Kahn test. 12 : 81–84, 1946.

UROL. & CUTAN. REV., WEST PALM BEACH

*Neurosyphilis, convulsions, and electroencephalography. Milton Greenblatt and Sidney Levin. 50 : 331–334, June 1946.

Syphilis in India. 50 : 379–380, June 1946.

Syphilis of bone. Max A. Levine. 50 : 399–406, July 1946.

An examination of some data on the relationship of blood donation to false positive serologic tests for syphilis. Robert D. Barnard. 50 : 406–411, July 1946.

Neurosyphilis, convulsions, and electroencephalography. Milton Greenblatt and Sidney Levin. Urol. & Cutan. Rev., West Palm Beach, 50: 331–334, June 1946.—The incidence of convulsive seizures in patients of the neurosyphilis clinic at the Boston Psychopathic Hospital is about 20 percent. Actually, 44 patients among 223 heterogeneous cases of central nervous system syphilis were found to suffer from epileptiform convulsions.

A group with meningovascular syphilis had the highest percentage of seizures; the general paresis group was next. No seizure histories were obtained in patients with tabes dorsalis or optic atrophy, although many of the latter had abnormal electroencephalograms.

A table shows the incidence of convulsions in several varieties of neurosyphilis. The grand mal type of seizure predominated. No petit mal was seen in the entire group; however, the short laps confusion, and amnesia often found neurosyphilis patients are manifestatio of brain damage from vascular occlusi

About half the total group of 223 p tients with neurosyphilis had electroe cephalographic abnormalities. Clinic deterioration usually compared with a normality of the electroencephalogra maximum abnormality being noted those with convulsive seizures. Amo unassorted cases of central nervous sy tem syphilis without history of seizur 60 percent have normal electroencepha grams, and approximately equal numbe have fast or slow abnormalities (20 pe cent and 19 percent, respectively). Pa oxysmal abnormalities, as seen in t adult control population, are exceeding rare.

Among patients having central nervo system syphilis with seizures, only 9 pe cent had normal electroencephalogram 27 percent had fast and 41 percent slo abnormalities. Brain damage is said predispose to slow rather than fast a normality. Contrary to former idea electroencephalograms show that chang are now found to continue througho life, being accelerated by senescence. Th tendency to both slow waves and great number of seizures in neurosyphilis p tients under 30 is compared with the te dency toward fast activity and fewe seizures in patients over 40. Seizur become less common with advancing ag the process of neurosyphilis causin more electrocortical derangement amon younger than among older patients.

Scott showed that nearly all abnorma electroencephalograms exhibited a redu tion of abnormality with penicillin the apy; however, it must be remembered tha although the electroencephalograms ma show improvement with decrease i pathology, sufficient damage may alread have been done to leave the patient men tally crippled.

VIRGINIA M. MONTHLY, RICHMOND

Interpretation of qualitative and quantita tive serologic reports. Edward M. Holme and Elsie P. Foxhall. 74 : 28–29, Jan 1947.

gnostic and Referral Activities of Venereal Disease Clinics, July–September 1946

a by Public Health Service District	Diagnostic observations		Previously untreated infections diagnosed or admitted to clinics [b] and percent referred to in-patient care for therapy									
			Syphilis								Gonorrhea	
	Number completed [a]	Percent infected	Primary or secondary		Early latent		Congenital		Other			
			Number	Percent referred	Number	Percent referred	Number	Percent referred	Number	Percent referred	Number	Percent referred
necticut	------	------	------	------	------	------	------	------	------	------	------	------
aware	------	------	------	------	------	------	------	------	------	------	------	------
ne	------	------	------	------	------	------	------	------	------	------	------	------
ssachusetts	1, 245	25. 9	179	44. 1	127	20. 5	21	14. 3	218	11. 5	698	1. 3
Hampshire	65	63. 1	9	55. 6	1	100. 0	1	100. 0	3	33. 3	28	3. 6
Jersey	9, 534	26. 1	421	67. 0	531	57. 1	36	25. 0	205	12. 2	1, 006	21. 4
York	------	------	------	------	------	------	------	------	------	------	------	------
ew York City	13, 097	45. 2	453	85. 6	204	5. 4	15	7. 7	289	1. 7	4, 005	1. 4
nsylvania	8, 819	53. 0	676	38. 3	738	20. 5	126	7. 9	564	2. 0	1, 520	6. 6
hiladelphia	3, 721	60. 5	321	33. 6	454	21. 4	26	3. 8	410	. 2	982	. 1
ittsburgh	1, 534	74. 4	72	80. 6	79	32. 9	10	0	9	66. 7	82	53. 6
de Island	48	25. 0	1	100. 0	1	0	1	0	8	0	0	------
mont [c]	0	------	0	------	0	------	0	------	0	------	0	------
District 1—Total [d]	------	41. 1	------	58. 3	------	30. 7	------	12. 0	------	5. 2	------	5. 3
trict of Columbia [e]	------	------	68	88. 2	95	28. 4	1	0	53	5. 7	1, 660	. 4
yland	------	------	------	------	------	------	------	------	------	------	------	------
th Carolina	------	------	1, 024	80. 1	633	56. 9	105	55. 2	218	10. 6	3, 662	2. 8
th Carolina	11, 519	25. 0	162	32. 7	382	12. 3	15	13. 3	135	0	1, 894	. 1
inia	13, 175	29. 6	496	85. 7	415	62. 9	32	78. 1	182	22. 0	2, 667	2. 1
st Virginia	4, 491	40. 4	306	87. 2	129	80. 6	19	73. 7	38	28. 9	1, 111	4. 7
District 2—Total [d]	------	29. 4	------	79. 0	------	48. 3	------	57. 6	------	12. 3	------	2. 0
nois	17, 196	47. 3	408	89. 2	325	31. 1	26	7. 7	235	1. 7	6, 929	1. 5
hicago	15, 077	47. 2	264	98. 1	274	34. 3	20	10. 0	184	1. 1	6. 325	1. 5
iana	2, 862	52. 9	312	76. 6	267	26. 6	22	22. 7	219	8. 7	540	2. 0
tucky [e]	7, 442	19. 3	294	83. 0	148	70. 9	10	60. 0	57	40. 4	958	1. 8
higan	5, 542	51. 3	368	81. 2	354	36. 7	13	23. 1	155	8. 4	1, 830	5. 1
o	7, 941	52. 6	624	23. 1	444	10. 6	40	7. 5	333	2. 4	1, 895	1. 4
consin	1, 089	19. 5	18	55. 6	19	15. 8	5	0	22	0	153	0
District 3—Total [d]	------	43. 5	------	64. 2	------	29. 4	------	16. 4	------	6. 6	------	2. 1
bama	10, 673	42. 9	268	60. 8	294	49. 3	28	60. 7	900	45. 7	2, 123	1. 8
ansas	11, 042	19. 4	252	62. 3	291	30. 2	20	50. 0	159	23. 3	1, 319	5. 9
rida	20, 352	36. 7	569	84. 5	875	68. 2	80	45. 0	440	31. 6	3, 743	1. 6
rgia [f]	5, 588	60. 3	252	56. 0	398	48. 7	44	50. 0	418	40. 7	1, 613	1. 0
isiana	9, 029	70. 0	836	90. 6	728	77. 9	77	57. 1	1, 019	6. 2	2, 317	2. 4
sissippi	16, 272	51. 0	1, 150	97. 0	1, 257	89. 3	151	91. 4	729	84. 6	4, 694	14. 3
nessee	15. 892	55. 5	858	91. 6	625	87. 4	54	81. 5	211	52. 1	6, 836	2. 5
District 4—Total	------	46. 1	------	86. 0	------	72. 9	------	68. 5	------	39. 9	------	4. 8
ska [c]	0	------	0	------	0	------	0	------	0	------	0	------
zona	3, 403	27. 6	90	44. 4	66	25. 8	9	22. 2	24	4. 2	296	65. 9
ifornia	14, 461	23. 7	505	70. 1	620	70. 3	27	14. 8	359	14. 2	4, 775	. 02
waii	846	19. 8	8	37. 5	11	0	2	0	53	5. 7	71	66. 2
ada	94	40. 4	6	16. 7	3	0	3	0	1	0	41	19. 5
gon	------	------	------	------	------	------	------	------	------	------	------	------
shington [g]	910	44. 9	69	81. 2	47	63. 8	4	75. 0	18	33. 3	283	5. 3
District 5—Total [d]	------	25. 3	------	67. 0	------	64. 6	------	20. 0	------	13. 4	------	4. 9
rto Rico	------	------	------	------	------	------	------	------	------	------	------	------
gin Islands [h]	1, 614	3. 5	2	50. 0	26	30. 8	0	------	0	------	27	0
District 6—Total [d]	------	3. 5	------	50. 0	------	30. 8	------	------	------	------	------	0
a	491	55. 4	41	80. 5	27	48. 1	1	0	4	25. 0	192	1. 0
nsas	1, 420	47. 8	64	81. 3	60	30. 0	4	0	57	14. 0	439	1. 7
nnesota	423	48. 7	43	62. 8	15	33. 3	6	33. 3	42	52. 4	136	32. 4
ssouri	6, 449	50. 8	279	67. 0	320	40. 0	24	20. 8	298	4. 0	1, 665	19. 4
t. Louis	4, 258	56. 2	173	69. 4	220	43. 2	16	18. 8	103	9. 7	1, 070	27. 5
braska	943	19. 8	13	69. 2	20	60. 3	3	0	20	25. 0	109	47. 7
rth Dakota	------	------	------	------	------	------	------	------	------	------	------	------
th Dakota	[i] 72	44. 4	95	29. 5	29	34. 5	7	0	3	0	234	0
District 7—Total [d]	------	47. 5	------	62. 8	------	39. 5	------	15. 6	------	11. 3	------	15. 3

For footnotes see end of table.

Diagnostic and Referral Activities of Venereal Disease Clinics, July–Septemb 1946—Continued

Area by Public Health Service District	Diagnostic observations		Previously untreated infections diagnosed or admitted to clinics [b] ar percent referred to in-patient care for therapy									
			Syphilis								Gonorrhe	
			Primary or secondary		Early latent		Congenital		Other			
	Number completed [a]	Percent infected	Number	Percent referred	Number	Percent referred	Number	Percent referred	Number	Percent referred	Number	Pe cen referr
Colorado	928	66.6	36	88.9	25	68.0	3	66.7	17	35.3	491	
Idaho	803	17.6	18	88.9	12	83.3	1	100.0	4	100.0	92	7
Montana	55	54.5	3	100.0	2	100.0	0	-------	3	66.7	20	10
Utah	767	31.9	15	100.0	11	81.8	4	100.0	9	66.7	147	
Wyoming	345	17.1	14	28.6	8	12.5	0	-------	1	0	13	2
District 8—Total	2,898	37.7	86	81.4	58	67.2	8	87.5	34	52.9	763	1
New Mexico [i]	1,893	15.1	38	44.7	89	41.6	4	100.0	37	24.3	189	1
Oklahoma	9,069	26.0	200	95.5	139	89.9	22	100.0	69	49.3	1,754	
Texas	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-----
District 9—Total [d]	-------	24.1	------	87.4	------	71.1	------	100.0	------	40.6	------	
Total for areas where data are available	-------	39.9	------	74.6	------	54.4	------	47.1	------	24.6	------	

[a] Excluding observations completed as "dropped" or "transferred."

[b] Excluding infections "transferred to other clinics." Presumably these are duplicated in other sections the report.

[c] Does not have any public venereal disease clinics.

[d] Total of available data.

[e] Data for August and September only.

[f] Data for July only.

[g] Excluding 5 areas—Bremerton, Port Angeles, Seattle, Spokane, and Whitman County.

[h] St. Thomas only.

[i] Data for 1 county only.

[j] Approximately 90 percent complete.

Source: Form 8954-A (revised June 1946), furnished by State health departments.

ontact Investigation Activities of Venereal Disease Clinics, July–September 1946

ea by Public ealth Service District	Cases diagnosed or admitted [a]			Contacts obtained from clinic patients						Contacts brought to treatment					
	Syphilis			Syphilis				Gonorrhea		Syphilis				Gonorrhea	
				Primary and secondary		Early latent				Primary and secondary		Early latent			
	Primary and Secondary	Early latent	Gonorrhea	Number	Number per patient	Number	Number per patient	Number	Number per patient	Number	Percent of total diagnosed	Number	Percent of total diagnosed	Number	Percent of total diagnosed
nnecticut	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
laware	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
iine	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
issachusetts	179	127	698	141	0.8	50	0.4	584	0.8	27	15.1	2	1.6	78	11.2
w Hampshire	9	1	28	8	.9	0	0	17	.6	2	22.2	1	100.0	12	42.8
w Jersey	421	531	1,006	277	.6	314	.6	646	.6	198	47.0	176	33.1	375	37.3
w York	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
New York City	453	204	4,005	503	1.1	262	1.3	1,844	.5	-----	-----	-----	-----	-----	-----
nnsylvania	676	738	1,520	[b] 268	.4	[b] 314	.4	592	.4	549	81.2	-----	-----	491	32.3
Philadelphia	321	454	982	136	.4	274	.6	308	.3	-----	-----	-----	-----	241	24.5
Pittsburgh	72	79	82	-----	-----	-----	-----	207	2.5	19	26.4	-----	-----	59	72.0
ode Island	1	1	0	0	0	0	0	0	-----	0	0	0	0	0	-----
rmont [c]	0	0	0	0	-----	0	-----	0	-----	0	-----	0	-----	0	-----
District 1 [d]—Total	-----	-----	-----	-----	.7	-----	.6	-----	.5	-----	60.3	-----	27.1	-----	29.4
strict of Columbia [e]	68	95	1,660	182	2.7	152	1.6	1,884	1.1	57	83.8	44	46.3	571	34.4
ryland	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
rth Carolina	1,024	633	3,662	967	.9	402	.6	2,117	.6	-----	-----	-----	-----	-----	-----
ith Carolina	162	382	1,894	246	1.5	264	.7	2,048	1.1	62	38.3	95	24.9	554	29.2
ginia	496	415	2,667	637	1.3	458	.9	2,282	.8	165	33.3	107	25.8	831	31.2
st Virginia	306	129	1,111	238	.8	105	.8	760	.7	-----	-----	-----	-----	-----	-----
District 2 [d]—Total	-----	-----	-----	-----	1.1	-----	.8	-----	.8	-----	39.1	-----	27.6	-----	31.4
nois	408	325	6,929	530	1.3	392	1.2	5,405	.8	-----	-----	-----	-----	-----	-----
Chicago	264	274	6,325	370	1.4	364	1.3	5,126	.8	-----	-----	-----	-----	-----	-----
liana	312	267	540	332	1.1	182	.7	271	.5	63	20.2	64	24.0	103	19.1
ntucky [e]	294	148	958	515	1.8	222	1.5	1,132	1.2	-----	-----	-----	-----	-----	-----
chigan	368	354	1,830	415	1.1	55	.2	1,475	.8	-----	-----	-----	-----	-----	-----
io	624	444	1,895	416	.7	123	.3	1,196	.6	-----	-----	-----	-----	-----	-----
sconsin	18	19	153	32	1.8	18	.9	18	.1	4	22.2	10	52.6	43	28.1
District 3 [d]—Total	-----	-----	-----	-----	1.1	-----	.6	-----	.8	-----	20.3	-----	25.9	-----	21.1
bama	268	294	2,123	126	.5	94	.3	810	.4	53	19.8	105	35.7	205	9.6
kansas	252	291	1,319	223	.9	165	.6	831	.6	-----	-----	-----	-----	-----	-----
rida	569	875	3,743	377	.7	436	.5	2,458	.6	155	27.2	220	25.1	733	19.6
orgia [f]	252	398	1,613	581	2.3	499	1.2	1,030	.6	-----	-----	-----	-----	-----	-----
iisiana	836	728	2,317	1,747	2.1	873	1.2	1,749	.8	244	29.2	205	28.2	525	22.6
ssissippi	1,150	1,257	4,694	592	.5	585	.5	2,866	.6	527	45.8	707	56.2	1,861	39.6
nnessee	858	625	6,836	913	1.1	601	1.0	6,832	1.0	184	21.4	201	32.2	1,589	23.2
District 4 [d]—Total	-----	-----	-----	-----	1.1	-----	.7	-----	.7	-----	31.6	-----	38.0	-----	24.9
ska [c]	0	0	0	0	-----	0	-----	0	-----	0	-----	0	-----	0	-----
zona	90	66	296	22	.2	15	.2	127	.4	-----	-----	-----	-----	-----	-----
ifornia	505	620	4,775	-----	-----	-----	-----	-----	-----	41	8.1	49	7.9	878	18.4
waii	8	11	71	0	0	0	0	0	0	2	25.0	0	0	40	56.3
vada	6	3	41	2	.3	5	1.7	12	.3	-----	-----	-----	-----	-----	-----
gon	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
shington [g]	69	47	283	38	.6	22	.5	203	.7	-----	-----	-----	-----	-----	-----
District 5 [d]—Total	-----	-----	-----	-----	.4	-----	.3	-----	.1	-----	8.4	-----	7.8	-----	18.9
rto Rico	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
gin Islands [h]	2	26	27	0	0	0	0	0	0	0	0	5	19.2	5	18.5
District 6 [d]—Total	-----	-----	-----	-----	0	-----	0	-----	0	-----	0	-----	19.2	-----	18.5

For footnotes see end of table.

Contact Investigation Activities of Venereal Disease Clinics, July–September 1946 Continued

Area by Public Health Service District	Cases diagnosed or admitted [a]			Contacts obtained from clinic patients						Contacts brought to treatmen					
	Syphilis			Syphilis				Gonorrhea		Syphilis				Gonorrh	
				Primary and secondary		Early latent				Primary and secondary		Early latent			
	Primary and Secondary	Early latent	Gonorrhea	Number	Number per patient	Number	Number per patient	Number	Number per patient	Number	Percent of total diagnosed	Number	Percent of total diagnosed	Number	Percent of
Iowa	41	27	192	54	1.3	43	1.6	205	1.1	----	------	----	------	----	---
Kansas	64	60	439	129	2.0	42	.7	472	1.1	----	------	----	------	----	---
Minnesota	43	15	136	----	----	----	----	------	----	----	------	----	------	----	---
Missouri	279	320	1,665	296	1.1	323	1.0	911	.5	[i] 40	[i] 37.7	[i] 26	[i] 26.0	[i] 105	[i] 1
St. Louis	173	220	1,070	192	1.1	260	1.2	519	.5	----	------	----	------	----	---
Nebraska	13	20	109	2	.2	14	.7	43	.4	----	------	----	------	----	---
North Dakota	----	----	----	----	----	----	----	------	----	----	------	----	------	----	---
South Dakota	95	29	234	7	.1	3	.1	9	0.0	19	20.0	2	6.7	29	1
District 7 [d]—Total	----	----	----	----	1.0	----	.9	------	.6	----	29.4	----	21.7	----	1
Colorado	36	25	491	84	2.3	44	1.8	641	1.3	----	------	----	------	----	---
Idaho	18	12	92	0	0	0	0	0	0	8	44.4	8	66.7	16	1
Montana	3	2	20	1	.3	0	0	4	.2	1	33.3	0	0	2	1
Utah	15	11	147	20	1.3	7	.6	125	.8	4	26.7	4	36.4	27	1
Wyoming	14	8	13	0	0	2	.2	3	.2	2	14.3	0	0	2	1
District 8 [d]—Total	86	58	763	105	1.2	53	.9	773	1.0	----	30.0	----	36.4	----	1
New Mexico [j]	38	89	189	33	.9	10	.1	151	.8	15	39.5	17	19.1	84	4
Oklahoma	200	139	1,754	247	1.2	124	.1	1,918	1.1	----	------	----	------	----	---
Texas	----	----	----	----	----	----	----	------	----	----	------	----	------	----	---
District 9 [d]—Total	----	----	----	----	1.2	----	.6	------	1.1	----	39.5	----	19.1	----	4
Total for areas where data are available	----	----	----	----	1.0	----	.7	------	.7	----	35.5	----	31.4	----	2

---

[a] Excluding infections "transferred to other clinics." Presumably these are duplicated in other sections of report.
[b] Includes incomplete data for the city of Pittsburgh.
[c] Does not have any public venereal disease clinics.
[d] Total of available data.
[e] Data for 2 months only.
[f] Data for July only.
[g] Excluding 5 areas—Bremerton, Port Angeles, Seattle, Spokane, and Whitman County.
[h] St. Thomas only.
[i] Data for Missouri exclusive of St. Louis; cases diagnosed or admitted for this area were: syphilis, primary a secondary, 106; early latent, 100; gonorrhea, 595.
[j] Approximately 90 percent complete.

Source: Form 8954-A (revised June 1946), furnished by State health departments.

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FEDERAL SECURITY AGENCY

United States Public Health Service

Thomas Parran, *Surgeon General*

Editor: **J. R. HELLER, Jr.,** ***Medical Director***
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The Cost of Venereal Disease Contact Investigation in Tennessee

Emerson L. Crowley, B. S.,[1] and C. B. Tucker, M. D.[2]

In recent years there has been increas-ıg awareness of the importance of effiient case finding to venereal disease ntrol. Health officers have been esecially interested in better methods of iscovering cases of early infectious philis before this disease can be spread others.

Public health officials in Tennessee beeve that contact investigation, if intellintly carried out by workers with a road understanding of the venereal disse control program, is one of the most fective methods of case finding and ould generally be given precedence over her technics. They believe that a wellunded program should include not only ntact investigation but also educational easures designed to encourage volunry application for treatment.

This paper explains how contact invesgation was evaluated in Tennessee.

In 1943, because of the shortage of rses, the employment of venereal disse investigators was started. Two assifications were set up. One is a nior venereal disease investigator reiring education equivalent to graduaon from high school, and the other is a nior venereal disease investigator reiring education equivalent to graduaon from a standard college or university. addition to the basic educational reirements, other qualities looked for e: ability to deal tactfully with the blic; exercise of good judgment in aluating situations and making decions; ability to express ideas clearly, ncisely, and convincingly; and ability plan and direct the work of others.

As soon as employed, an investigator is signed to a rapid treatment center for period of 1 to 2 weeks for orientation llowed by assignment in a county with one of the best investigators for 2 weeks of intensive training. Then the investigator is assigned to the county where he is to work and receives frequent visits from the public health representative for supervision and direction.

The duties of investigators are: interviewing patients for contact information; encouraging the cooperation of patients by explaining venereal disease and how it can be controlled; locating and bringing in for examination named contacts and "other suspects"; following up delinquent cases; interpreting the control program to community agencies and to the general public; and securing their cooperation. Whenever feasible, the promotion of voluntary reporting for examination and diagnosis is also the concern of the investigators.

In addition to investigators, some counties have public health nurses employed full time in venereal disease control work. This arrangement provides an ideal opportunity to evaluate, in terms of cost, the effectiveness of contact investigation.

Seven counties, employing 14 full-time epidemiologic workers, were selected for such an evaluation. During a sample month (July 1946), the salaries and expenses of these workers were apportioned between interviewing and contact locating, and the results were tabulated.

Costs were charged to contact investigation as follows: (1) the cost of interviewing, including patient education; (2) the cost of field investigation; and (3) travel and other incidental expenses directly attributable to field location. Costs incurred in the clinics in the examination of contacts were not included. Nor was the time spent by the workers in increasing public knowledge of the causes, prevention, symptoms, and treatment of venereal diseases considered in this study. That is, no attempt was made to apportion to "public information" any part of the salaries. Instead, the total cost in terms of salaries and travel expenses of the 14 full-time epidemiologic workers was allocated to contact investigation.

---

[1] Public Health Representative assigned to nnessee Department of Public Health.

[2] Director, Division of Preventable Diseases, nnessee Department of Public Health.

During the month of July 1946, the salaries totaled $2,211. Of this sum, $585 was for time spent in interviewing, and $1,626 for field investigating. Travel expenses amounted to $602, and this sum was also charged to field investigation.

The accompanying table summarizes the costs and accomplishments of contact investigation in the seven counties during the month specified. It should be noted that the table differentiates between contacts named in interviews and "other suspects." The latter category includes, in this study, seropositive cases found in selectee, separatee, premarital, prenatal, and other such groups. Investigators cover these cases, as well as named contacts, in their field work, and calculations must include over-all field costs. This produces an "average cost," based on the assumption that the cost of field investigation is the same for both types of cases. In calculating maximum costs, however, this aspect is not considered, and all expenses and salaries of investigators are computed as covering only contact investigation.

This method exaggerates the cost of contact investigation. Nevertheless, the evaluation is presented in this manner because, in any circumstance, the result can be considered as the maximum cost of contact investigation.

The table shows that 401 infected contacts were brought to treatment as a result of contact investigation. Forty-four were infected with primary or secondary syphilis. Obviously, it is a contribution to public health to bring to treatment cases of early latent syphilis and cases of gonorrhea. However, it is impossible to distribute the cost of bringing infected persons to treatment among the different stages of syphilis and gonorrhea. Therefore, to determine the unit cost for primary and secondary syphilis brought to treatment as a result of tact investigation, the total cost of terviewing and investigation is attrib to these 44 cases. The maximum cos bringing to treatment a case of lesion syphilis is thus shown as $63.9

This also may seem to be an overst ment of the cost of finding a case of mary or secondary syphilis. But, spite of this fact, the figure of $63.9 lower than any other cost figure fo recorded for any other method of finding.

Cost of contact investigation—7 coun in Tennessee—July 1946

	Cost	Number	
Total salary of investigators (lay and nurse)	$2,211	------	--
Salary apportioned to interviewing	585	------	--
Contacts named	------	1,417	--
Cost per contact named in interview	------	------	$
Salary apportioned to field location	1,626	------	--
Travel expenses	602	------	--
Total cost of field location	2,228	------	--
Total persons (contacts and other suspects) brought in	------	1,111	--
Cost per person brought in	------	------	
Total contacts brought in	------	761	--
Estimated cost of field location (at $2 each)	1,522	------	--
Cost of interviewing (salary)	585	------	--
Estimated total cost: Interviewing and location	2,107	------	--
Number of infected contacts	------	401	--
Cost per infected contact	------	------	
Maximum costs:			
Total cost: Interviewing and locating (all salary and travel)	2,813	------	--
Number of infected contacts	------	401	--
Cost per infected contact	------	------	7
Primary and secondary syphilis contacts	------	44	--
Cost per primary and secondary syphilis contact[1]	------	------	63

[1] Charging all cost of interviewing and field locat in the area to primary and secondary syphilis ca brought in as a result of contact investigation.

North Carolina's Experience with the Investigation of Suspected Venereal Disease Contacts[1]

William P. Richardson, M. D., and Charles R. Council, B. A.

A preliminary report has been pub- shed (*1*) on the practice, inaugurated one of North Carolina's rapid treat- ent centers, of obtaining during the in- rviewing of a venereal disease patient ie names of persons (other than the itient's actual contacts) who might asonably be regarded as infected, but ho were not directly exposed to the itient.

For want of a more suitable term, per- ns whose names were obtained in this anner for investigation were designated suspected contacts.

Three groups of suspected contacts ere defined: (1) Persons reported by a itient as promiscuous, although the pa- ent disclaims sexual contact with the dividuals named; (2) persons reported a patient as having been exposed or obably exposed to an actual contact al- ady named by the patient; (3) persons ported by a patient as having partici- ted with him in hotel or brothel parties.

The preliminary report indicated that e investigation of suspected contacts ight be a fruitful new approach to find- g cases of infectious venereal disease, though certain important limitations d precautions were emphasized.

The present discussion presents sta- tics bringing the North Carolina ex- rience up to date, and points out some the practical and administrative con- lerations which seem significant.

The preliminary report covered the nonth period from March to June 1945, d included 599 suspected contacts. ie present report covers the 17-month riod from March 1945 through July 46, and includes 3,631 suspected con- cts.

The two rapid treatment centers in rth Carolina reported the great ma- rity of these suspected contacts. Approximately half of the local health departments in the State reported suspects, but only 7 departments reported more than 10 suspects over the 17 months. Most of the local health departments participated in the investigation of these cases.

Data received from local health department personnel indicate that this type of information is elicited and used in case finding by the departments considerably more often than is reported to the Central Tabulating Unit.

Table 1 shows, by diagnosis of the informant, the number of persons reported and the number and kind of infections brought to treatment among 3,631 suspected contacts and among 10,547 actual contacts. It is apparent that there is about the same measure of correlation between the diagnosis of the informants and the diagnosis of the cases brought to treatment in the two groups. The preliminary report pointed out several possible explanations for this association of infections.

Table 2 summarizes the comparison of the results of investigation of the two groups. The percentages of contacts examined are almost identical: 57.0 percent of the suspected, and 54.5 percent of the actual contacts. A slightly lower percentage of suspected contacts were infected—22.6 percent as compared with 28.3 percent of the actual contacts. This is not surprising when it is realized that not all the suspected contacts are known to have been actually exposed to a venereal disease. Another factor may be that in North Carolina all actual contacts of infectious syphilis cases are observed for a period of 90 days from the date of exposure, whereas suspected contacts are not, but are recorded as not infected upon receipt of the first negative report, even though the period of observation is less than 90 days.

---

[1] From the North Carolina State Board of alth.

TABLE 1.—*Results of investigation of actual and suspected contacts who were broug to treatment, showing diagnosis of contacts by stage and disease in relation to sta and disease of informants*[1]

Type of contact	Diagnosis of informant	Number of persons reported	Diagnosis of cases brought to treatment							
			Primary and secondary syphilis		Early latent syphilis		Other and unknown syphilis		Gonorrhea	
			Number	Percent of total reported	Number	Percent of total reported	Number	Percent of total reported	Number	Perce of tot re- porte
Suspected [2]	Primary-secondary.	1,266	45	3.6	43	3.4	9	0.7	6	0
	Early latent	792	17	2.1	28	3.5	20	2.5	4	
	Other-unknown	338	17	5.0	9	2.7	8	2.4	--------	------
	Gonorrhea	1,235	1	.08	--------	--------	1	.08	223	1
	Total	3,631	80	2.2	80	2.2	38	1.1	233	
Actual [3]	Primary-secondary.	2,952	192	6.5	114	3.9	40	1.4	36	1
	Early latent	2,205	46	2.1	86	3.9	37	1.7	13	
	Other-unknown	671	24	3.6	28	4.2	36	5.4	6	
	Gonorrhea	4,719	16	.3	1	.02	34	.7	882	1
	Total	10,547	278	2.6	229	2.2	147	1.4	937	

[1] Actual contacts have had at least 90 days for investigation; suspected contacts from 1 to 90 days if report May–July 1946; more, if reported prior to May.
[2] Reported March 1945–July 1946.
[3] Reported July–December 1945.

TABLE 2.—*General comparison of results of investigations*[1] *for actual contacts an suspected contacts of syphilis and gonorrhea*

Type of contact	Number of cases reported	Examined		Already under treatment		Brought to treatment			Total found infected	
		Number	Percent of total reported	Number	Percent of total reported	Number	Percent of total reported	Percent of total examined	Number	Percer of tot re- porte
Suspected	3,631	2,068	57.0	391	10.8	431	11.9	20.8	822	22
Actual	10,547	5,749	54.5	1,485	14.1	1,503	14.3	26.1	2,988	28

[1] Actual contacts have had at least 90 days for investigation; suspected contacts from 1 to 90 days if report May–July 1946; more, if reported prior to May.

NOTE: The difference between the 2 tables in the totals shown under "Brought to treatment" is account for by the fact that table 1 covers the number of infections brought to treatment, and table 2 covers the numb of individuals brought to treatment for the disease suspected. In 88 instances, infections other than the one the informant were discovered.

It is evident, therefore, that so far as results can be measured by statistical analysis, the investigation of suspected contacts compares favorably with the investigation of actual contacts. One major difference appears in table 1 in the subgroup of informants with primary or secondary syphilis; the percentage of their actual contacts brought to treatment with early infectious syphilis is almo double that of suspected contacts.

However, statistical results do not te the whole story, and observations in th rapid treatment centers and in the loca health departments suggest some definit ideas about the usefulness and limita tions of this approach to case finding.

It should be emphasized first of all tha

ese suspected contacts are not in the
me legal category as actual contacts.
ie presumption that they may be in-
ted is based on what is, legally, only
arsay or circumstantial evidence. It
ould be kept emphatically in mind by
concerned with handling them that
e only appeals which can be invoked to
cure their examination are coopera-
n and self-interest. Legal compulsion
nnot be threatened or used. Fortu-
tely, as a result of the increasing ef-
tiveness of educational measures, a
rprising number of persons come in vol-
tarily when requested to do so.

An untactful approach to these sus-
cts, or the threat or use of force, may
ing embarrassing legal complications to
health department. Indiscriminate
e of this method of case finding may
ing about a feeling of resentment
iong the elements of the population
st heavily infected, and thus may
pardize the confidence and cooperation
essential to continued success of the
iole venereal disease program.

In the second place, the contact inter-
wer must constantly bear in mind the
ids of errors on the part of patients
iich may result in false or unreliable
ormation. Some patients will delib-
itely name people for spite, or to play
rick on them. Or a patient may often
unwilling to admit intercourse with
tain actual contacts, and so will name
m as suspected contacts. Others will
so enthusiastically to be helpful that
y will name everyone they can think
often with little or no grounds. Health
partments report having received
mes of suspects who were evidently
orted on this basis, and investigation
isequently proved to be a complete
ste of time.

An interviewer should exercise great
ition and judgment in reporting the
mes of suspected contacts. He should
isider carefully the patient himself,
d the reasons the patient thinks the in-
iduals named should be examined. In
ieral, reports of exposure to the pa-
nt's own contacts, and of joint par-
ipation in brothel or hotel parties, are more reliable than reports of persons whom the patient believes to be promiscuous, although in special instances the latter type of information may be highly significant.

A patient told the interviewer in one clinic of a certain "joint" frequented by a group of girls and boys he believed to be promiscuous—perhaps from personal experience, although he did not admit this—and gave the names of 17 girls and 5 men. These individuals were induced to come in for examination. A diagnosis of early syphilis had already been made on 2 of the girls; and 7 others were found on either the first or a subsequent examination to have syphilis, 6 of them primary or secondary. Eight of the girls, including 4 of those with syphilis, had gonorrhea. Two of the men had primary or secondary syphilis.

This experience points to what should be one of the greatest fields of usefulness of this approach, namely, its use by a local clinic where the interviewer makes the investigations, or the work of the interviewer and the investigator is closely integrated. In this way, isolated facts can often be pieced together into a meaningful pattern.

The investigation of situations like that cited is greatly facilitated by having, in addition to the names and identifying data, information about background and circumstances. Such data can be obtained and evaluated much more easily in the local community than at a distant hospital.

Reports received by the Central Tabulating Unit do not show that local departments are making general use of this approach. It would seem worth while to encourage its more extensive use at the local level.

So far there have been no reports of serious incidents in connection with the investigation of suspected contacts in North Carolina. It may be advisable, however, when the names are obtained by a rapid treatment center and referred to the local department by means of routine reports, for the local personnel to be warned specifically of the character of this information, and be emphatically instructed not to use coercive measures in following these individuals.

Moreover, in order to emphasize the difference between these suspected individuals and actual contacts, a distinctive form for reporting them could be used, giving space for more of the background information on the basis of which the person is reported as a suspect.

SUMMARY

North Carolina rapid treatment centers and, to a much smaller degree, local health departments have continued to elicit and report information on suspected venereal disease contacts. Investigation of these individuals has yielded almost as large a percentage of cases infectious venereal disease as has t follow-up of actual contacts. There a definite limitations and precautions be observed in investigating these case and it is suggested that more extensi efforts on the part of local clinics to s cure and follow up this informati might yield better results than depen ence on rapid treatment center inte viewing and Central Tabulating U reporting.

REFERENCE

1. HAZLEHURST, W. D.; STEVICK, C. KAHN, H. A.: Preliminary report ev uating the worth of obtaining nam of suspected contacts during a regul contact interview. J. Ven. Dis. I form., 27: 65–68, 1946.

Significance and Interpretation of Quantitative Bloo Tests for Syphilis[1]

Maurice C. Shepard, Senior Assistant Sanitarian (R),
United States Public Health Service

The serologic test for syphilis is a procedure for determining the presence of a syphilitic antibody known as reagin. This substance is produced by the human body as a result of infection with Treponema pallidum, the causative organism of syphilis, much in the same manner as typhoid antibody is produced during infection by Eberthella typhosa, the microorganism causing typhoid fever. These antibodies circulate in the blood and lymph stream, and their presence can be detected by serologic tests.

In the case of infection with syphilis, the syphilitic antibody (reagin) can be detected by the use of certain artificially prepared test antigens which are employed in serologic blood tests. Since reagin is a freely circulating antibody it is necessary to test only the fluid portion of whole blood—the blood serum. The red cells in a collected specimen of who blood are allowed to clot. The separat serum is then transferred to a tube, a prepared for testing to determine t presence or absence of reagin. There a two broad classifications of serolog blood tests: the qualitative, or standa diagnostic test for reagin, and the quan tative test.

In the former, the qualitative test, v determine whether reagin is present absent in the serum. The serum-antig reaction is usually reported as negati (no reagin), doubtful (questionable slight reagin content), or positive (de nite reagin content in the blood serum A positive qualitative test does not nece sarily mean that the person whose blo serum was so tested has syphilis. Th information must be considered merely an aid in diagnosis. Diagnosis of syphil can only be justified by coupling the pos tive result of the serologic test with pos tive clinical findings or a suggesti history.

---

[1] Given before Medical Record Analyst Refresher Course at Washington, D. C., January 21, 1947.

The qualitative test does not give us a
easure of the reagin content (titer) of
e blood serum, i. e., we may know that
e serologic test is positive (4+) but we
not know the degree of positivity.
The quantitative test is performed to
termine the reagin content, or degree of
sitivity (titer), in the blood serum. In
is type of test, the blood serum is car-
ed through a series of dilutions with
line (salt solution), so that, in a series
tubes set up for testing, the concentra-
n of reagin becomes progressively less
d less, as the serum is made more and
ore dilute with saline. It follows that
e more "positive" the serum sample
he higher its reagin content), the more
e serum can be diluted before the reagin
ncentration reaches minimum detecta-
lity. Similarly, a positive serum which
ntains only a moderate or low amount
reagin, will show positive detectability
eactivity) only in low dilutions of
rum with saline, since its detectable
ncentration soon fades out. This is the
sis of the quantitative test for syphilis.
It is important to know which method
preparing serial dilutions of serum is
ed in the laboratory. At present, two
neral methods are in use: (1) doubling
rial dilutions (example: 0, 1:2, 1:4,
8, 1:16, 1:32, 1:64, 1:128) and (2)
method employing multiples of 10,
ich we may designate as deca serial
utions. The latter may employ either
e or more sequence patterns (example:
1:5, 1:10, 1:20, 1:30, 1:40, 1:50,
60; or 0, 1:2.5, 1:5, 1:10, 1:20, 1:40).
should be remembered that if a positive
ction with serum and antigen emulsion
rsists through the highest dilution usu-
y prepared, the laboratory technician
pares still higher dilutions for testing
til the reagin concentration end point
reached—which, in the case of strongly
tent serums, may reach a serum dilu-
n of 1:512 (doubling), 1:500 (deca),
very rarely, higher.
The reagin titer (dilution titer, or
er) of a positive serum examined by
quantitative test is originally ex-
essed at the laboratory in terms of the
hest dilution of serum evidencing a "positive" reaction. Thus, a report "Pos. 1:16" indicates that all dilutions up to and including the 1:16 dilution of serum showed a sufficient reaction to be called positive, and that all higher dilutions showed reactions that were below the positive limit or were negative.

It is often desirable to express the potency of a positive serum in terms of units, rather than in terms of the dilution titer. It should be noted that either reporting method is an expression of titer. The unit is an arbitrary designation, first described by Dr. Reuben L. Kahn, for reporting the Kahn quantitative test, and is based upon the plus value of the diagnostic (qualitative) test. A serum showing a 4 plus reaction with the diagnostic test, but negative on dilution, is interpreted in the quantitative test as having a titer of 4 units. Likewise, reactions of 3 plus, 2 plus, and 1 plus are interpreted in the quantitative test as having titers of 3, 2, and 1 unit, respectively. For serums that are positive on dilution, the quantitative titer in units (S) is obtained by applying the S=4D formula, (where D=the dilution titer of the serum). Quantitative titer units were originally expressed as Kahn units. More recently, the term Kolmer units, based on the same S=4D formula, has been suggested by Dr. J. A. Kolmer in reporting results of the Kolmer quantitative test.

It is to be noted that certain forms used for reporting results of serologic quantitative tests call for entry of serologic titer in terms of units. To avoid confusion and misinterpretation due to entry on such a report in terms of dilution titer (example: Pos. 1:8, 1:64, etc. or worse, 8 or 64) the word "units" or symbol "U" should be repeated after the numerical entry. Routine observance of this practice is important whenever serologic titer is expressed in units. This practice is particularly significant due to the multitude of reporting methods in current use.

A frequently misunderstood type of serologic quantitative report (originating from many private laboratories and an occasional State laboratory) is that which expresses the dilution titer of a serum in a manner not in accordance with previous dilution sequence intervals or which has not been encountered in earlier quantitative follow-up reports. This is known as an interpolated titer, and represents a dilution titer estimated to be located midway between the highest serum dilution showing a positive reaction and the adjacent higher dilution wherein a doubtful reaction is observed. (Example: Assume (1) the usual routine serial dilutions of serum with saline are doubling dilutions of 0, 1:2, 1:4, 1:8, 1:16, 1:32, 1:64, and 1:128; (2) the highest serum dilution showing a positive reaction is the 1:32 dilution; (3) that a low degree of reactivity ("doubtful") but which was not negative, is observed in the 1:64 dilution. In such an instance (1:32 "positive"; 1:64 "doubtful"; 1:128 "negative") the laboratory assumes that the point of minimum "positive" detectability (end point) is located midway between the 1:32 and the 1:64 serum dilution, or a dilution titer pos. 1:48). A interpolated titer, although it falls with the limits of a routine serial dilutic sequence pattern, whether "doubling" "deca," is not in strict conformity wit the established method of determini the dilution titer of a serum.

Occasionally one finds a serolog quantitative report expressing only ti individual tube readings (plus values such as 4 4 4 4 3 2 1 —. This report ca not be interpreted in terms of dilutic titer or units without first knowing tl precise serial dilution method employe at the reporting laboratory. In such cas the laboratory should be consulted.

Since certain serologic tests diff slightly in the manner in which the pos tive-range plus values are to be inte preted in determining the dilution tite the name of the serologic test (exampl Kahn, Eagle floc., Mazzini, etc.) shou always be mentioned. Likewise, ar change in existing test, dilution syste or method of reporting should be a companied by an explanatory statemen

Public Health Service Districts, District Directors, Stat Health Officers, and Venereal Disease Control Person nel in States

[Announcement of changes in these lists will be published in the JOURNAL OF VENEREA DISEASE INFORMATION from time to time.]

PUBLIC HEALTH SERVICE DISTRICTS, DISTRICT DIRECTORS, AND VENEREAL DISEASE CONTRC CONSULTANTS IN THE DISTRICTS

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Surgeon James K. Shafer

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Arkansas
Florida
Georgia
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Mississippi
Tennessee

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Surgeon John A. Lewis, Jr.

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California
Nevada
Oregon
Washington
Territory of Alaska
Territory of Hawaii

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Virgin Islands

Medical Director A. J. Aselmeyer
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San Juan 18, P. R.

Venereal Disease Control Consultant:
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Kansas
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Missouri
Nebraska
North Dakota
South Dakota

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Director, District No. 7
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Kansas City 6, Mo.

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Utah
Wyoming

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Venereal Disease Control Consultant:
Senior Surgeon L. L. Byington

District No. 9:

New Mexico
Oklahoma
Texas

Medical Director K. E. Miller
Director, District No. 9
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Room 513, 1114 Commerce
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Venereal Disease Control Consultant:
Surgeon Edwin N. Hesbacher

STATE HEALTH OFFICERS AND VENEREAL DISEASE CONTROL OFFICERS

[The figure in parentheses indicates the Public Health Service District in which the Sta
is located]

NOTE: Letters should be addressed to the State health officer, attention Venereal Disease Control Officer (name shown in parentheses).

Alabama (4):
Dr. D. G. Gill
State Health Officer
Alabama State Department of Health
Montgomery 4, Ala.
(Dr. W. H. Y. Smith)

Alaska (5):
Dr. C. Earl Albrecht
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Alaska Territorial Department of Health
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Arizona State Department of Health
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(No VDCO)

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Arkansas State Board of Health
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California State Department of Public Health
760 Market Street
San Francisco 2, Calif.
(Dr. A. Frank Brewer)

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(No VDCO)

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Delaware State Board of Health
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District of Columbia Health Depar
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Territory of Hawaii Board of Heal
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(Dr. Samuel E. Allison)

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Idaho Department of Public Health
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(Dr. L. J. Lull)

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Illinois State Department of Publ
Health
Springfield, Ill.
(Dr. Leslie W. Knott)

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Indiana State Board of Health
Indianapolis, Ind.
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owa (7):
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Iowa State Department of Health
Des Moines 19, Iowa
(Dr. R. M. Sorenson)

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Kansas State Board of Health
Topeka, Kans.
(Dr. Glenn H. Baird)

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Kentucky State Department of Health
Louisville 2, Ky.
(Dr. John R. Pate)

ouisiana (4):
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Louisiana State Department of Health
New Orleans 7, La.
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assachusetts (1):
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(Dr. H. G. Irvine)

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Missouri State Board of Health
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(Dr. C. W. Meinershagen)

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(Dr. Fred P. Long)

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Carson City, Nev.
(Dr. B. H. Caples)

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New Hampshire State Board of Health
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Oklahoma City 6, Okla.
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Pennsylvania State Department
Health
Harrisburg, Pa.
(Dr. Edgar S. Everhart)

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Puerto Rico Department of Health
San Juan, P. R.
(Dr. Ernesto Quintaro)

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Rhode Island Department of Health
Providence, R. I.
(Dr. Raymond F. McAteer)

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South Carolina State Board of Health
Columbia 10, S. C.
(Dr. Clarence Lee Guyton)

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South Dakota State Board of Health
Pierre, S. Dak.
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Tennessee Department of Public Healt
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(Dr. C. B. Tucker)

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Texas State Department of Health
Austin 14, Tex.
(Dr. R. S. Lloyd)

Utah (8):

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Utah State Department of Health
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(Dr. Welby W. Bigelow)

ermont (1):
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Virginia Department of Health
Richmond 19, Va.
(Dr. E. A. Holmes)

irgin Islands (6):
Dr. Knud Knud-Hansen
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Virgin Islands Department of Health
Charlotte Amalie, V. I.
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West Virginia State Health Department
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(Dr. Andrew P. Sackett)

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State Health Officer
Wisconsin State Board of Health
Madison 2, Wis.
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State Health Officer
Wyoming State Department of Health
Cheyenne, Wyo.
(Dr. N. H. Savage)

Announcement

Ninth Annual Session

American Neisserian Medical Society

Atlantic City, N. J., June 8–9, 1947

The membership of the American Neis-
rian Medical Society has voted to in-
ease its scope of activity to include the
edical and public health aspects of all
e venereal diseases. The Society will
renamed in accordance with this en-
rged scope.

The ninth annual session of the Society
ill be conducted at the Marlborough-Blenheim Hotel, Atlantic City, N. J. The session will open with a business meeting on the evening of June 8. A scientific program, at which all the venereal diseases will be discussed, will be conducted on June 9.

All physicians interested in any aspect of the venereal diseases are cordially invited to attend.

CURRENT LITERATURE

NOTE: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the past 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

AM. J. SYPH., GONOR. & VEN. DIS., ST. LOUIS

Penicillin in the treatment of neurosyphilis. I. Asymptomatic neurosyphilis. Joseph Earle Moore and Charles F. Mohr. 30 : 405–419, Sept. 1946.

*The systemic treatment of 227 cases of arsenic poisoning (encephalitis, dermatitis, blood dyscrasias, jaundice, fever) with 2,3-dimercaptopropanol (BAL). Harry Eagle and Harold J. Magnuson. 30 : 420–441, Sept. 1946.

*Studies on the biologic relationship between the causative agents of syphilis, yaws, and venereal spirochetosis of rabbits. I. Observations on Treponema cuniculi infection in rabbits. Charlotte McLeod and Thomas B. Turner. 30 : 442–454, Sept. 1946.

*Studies on the biologic relationship between the causative agents of syphilis, yaws, and venereal spirochetosis of rabbits. II. Comparison of the experimental disease produced in rabbits. Charlotte McLeod and Thomas B. Turner. 30 : 455–462, Sept. 1946.

Syphilitic nephrosis as a manifestation of a renal Herxheimer reaction following penicillin therapy for early syphilis. Virgil Scott and E. Gurney Clark. 30 : 463–467, Sept. 1946.

The therapeutic effectiveness of relatively crude commercial penicillin in early and late rabbit syphilis. William L. Fleming and Mary H. Wolf. 30 : 468–474, Sept. 1946.

*The rapid treatment of early syphilis with the combined use of penicillin and mapharsen. Herman N. Bundesen, Robert M. Craig, George X. Schwemlein, Robert L. Barton and Theodore J. Bauer. 30 : 475–479, Sept. 1946.

Penicillin by mouth in the treatment of late cutaneous syphilis. Report of a case. Evelyn Wallace and W. D. Paul. 30 : 480–484, Sept. 1946.

*Oral penicillin treatment of gonorrhea. Alfred Cohn, Borris A. Kornblith and Isaak Grunstein. 30 : 485–489, Sept. 1946.

The value of the quantitatively standardized complement fixation test in the diagnosis and treatment of early syphilis. E. R. Maillard and Anne Orzel. 30 : 490–494, Sept. 1946.

Surgical treatment of inguinal lymphogra
uloma venereum. An analysis of 6
consecutive cases in the male. Harold
Tucker. 30 : 495–503, Sept. 1946.

(Syphilis treatment card.) Lawrence K
enstein. 30 : 504, Sept. 1946.

*Asymptomatic neurosyphilis: prognos
Richard D. Hahn and E. Gurney Clar
30 : 513–548, Nov. 1946.

*The relative toxicity and therapeutic a
tivity in experimental syphilis of bi
muth subsalicylate, bismosol, and bi
posol. Harry Eagle. 30 : 549–554, No
1946.

Electrophoretic analysis of syphilitic,
ologic false positive, and normal hum
sera. G. R. Cooper, H. W. Craig a
J. W. Beard. 30 : 555–570, Nov. 194

Experimental syphilis. Qualitative a
quantitative studies of reagin in norm
and syphilitic rabbits. Noble P. Sh
wood and Carolyn Collins. 30 : 57
580, Nov. 1946.

*The effect of streptomycin on experiment
syphilis infection of rabbits. R. A. F
ken and O. M. Gruhzit. 30 : 581–58
Nov. 1946.

*Penicillin in the treatment of gonococc
infections. Analysis of the results
ported in the literature through 194
Manson Meads and Maxwell Finlan
30 : 586–609, Nov. 1946.

**The systemic treatment of 227 cases
arsenic poisoning (encephalitis, de
matitis, blood dyscrasias, jaundice, feve
with 2,3-dimercaptopropanol (BAL**
Harry Eagle and Harold J. Magnuso
Am. J. Syph., Gonor. & Ven. Dis., 30 : 42
441, 1946.

The authors discuss BAL (2,3-dime
captopropanol), a compound developed
Stocken and Thompson for the local d
contamination and treatment of arsenic
blister gas injuries.

When a clinical trial of this prepar
tion in the treatment of toxic complic
tions of arsenical chemotherapy w
found to be desirable, studies were unde
taken to delimit the maximum dose whi

ld be given intramuscularly in man
th safety and to determine the thera-
utic effect of such doses in various
nical types of arsenic poisoning. Clini-
data made available to the authors
to December 1945 indicate that the
ximum dosage of BAL which it is feas-
e to administer intramuscularly in man
4-hour intervals is 4 mg. per kilo-
m; smaller doses on the order of 2.5
. per kilogram are desirable to mini-
ze local pain. With an average unit
se of from 2.5 to 3.0 mg. of BAL per
ogram, it is recommended that 4 to 6
ections be given daily for the first 2
ys, with injections once or twice a day
ereafter until recovery.

A total of 227 patients is reported upon,
ny of whom received conventional sup-
rtive treatment and supplementary
dication other than BAL. However,
spite of difficulties in evaluation, the
ta suggest that BAL properly admin-
ered may accelerate the recovery of
tients with arsenical encephalitis, ar-
nical dermatitis, agranulocytosis, or
ose who have received a massive over-
se of mapharsen.

In 55 patients with arsenical encepha-
is treated with BAL, the over-all mor-
ity was 11 percent. The mortality in
e first 24 severe cases treated within
to 6 hours after development of symp-
ms was 20 percent; of 9 patients in
om treatment was delayed for about
hours, 5 died. In general, patients
o recovered showed improvement in 1
2 days and complete recovery in ap-
oximately 4 days. In 88 patients with
senical dermatitis, the average time
r definite improvement in the patients
ith severe cases successfully treated
s 3 days, 13 days being required for
om 75 to 90 percent recovery. Of 11
tients with arsenical agranulocytosis,
ly 1 died, the others showing prompt
provement and an increase in the total
ite blood cell count. In patients with
starsenical jaundice, the data suggest
at BAL may perhaps accelerate recov-
y in a small proportion. Of 14 such
tients, for instance, 5 showed symp-
matic improvement; in 7, improvement
was slow or absent; and in the remaining 2 patients, the results were debatable.

In the patients so far treated, the dosage of BAL has averaged from 500 to 700 mg. in the first 24 hours and from 1,000 to 1,500 mg. over a period of from 3 to 7 days. Since in no patient has there been a serious systemic toxic reaction due to BAL, it is suggested that the unit dosage and the number of injections be increased in serious arsenical poisoning. Intramuscular injections of 3 mg. per kilogram (average adult dose of 150 to 200 mg.=1.5 to 2 cc. of 10-percent solution) may be repeated every 4 hours during the first 48 hours to a total of 12 injections and should be given at least twice daily thereafter until complete recovery.

Studies on the biologic relationship between the causative agents of syphilis, yaws, and venereal spirochetosis of rabbits. I. Observations on Treponema cuniculi infection in rabbits. Charlotte McLeod and Thomas B. Turner. Am. J. Syph., Gonor. & Ven. Dis., 30: 442–454, 1946.

The authors discuss a naturally occurring spirochetal disease of rabbits, the causative organism of which, Treponema cuniculi, is morphologically indistinguishable from the spirochetes of syphilis and yaws.

In the experiments reported upon, T. cuniculi infection was studied in male rabbits of mixed breeds. To isolate strains, preputial lesions were washed with saline and excoriated, the exuding blood and serum being collected in broth with a capillary pipette. This material was then used to initiate the experimental disease in normal rabbits by inoculation into the right testis and upon the prepuce. In subsequent transfers, the inoculum consisted of testicular emulsion free of bacteria other than T. cuniculi. One rabbit from the transfer group was then used for passage, the infected testis being ground with sand and diluted with broth. The resultant spirochete suspension, after centrifuging, was used for inoculation, which was usually done on the testis, prepuce, and shaved skin of the back.

Rabbits were examined at least twice

weekly for lesions at the sites of inoculation and for any generalized lesions which might arise. During the period 1939–42, more than 200 rabbits were observed. The clinical picture produced by T. cuniculi was similar to that observed in experimental syphilis, immunity to reinoculation being produced as in T. pallidum and T. pertenue infection. Individual lesions of the prepuce, testis, scrotum, and skin, while abounding in treponemes, differed from the lesions of experimental syphilis in lacking the degree of induration found in that disease. The lesions were characterized by areas of infiltration of lymphocytes, monocytes, and plasma cells much as is observed in yaws and syphilis.

Treatment consisted of injection of neoarsphenamine into the marginal ear vein, 40 mg. per kilogram of body weight given in one injection proving effective. Lesions became darkfield negative within 24 hours and had practically disappeared at the end of 1 week. The serologic reaction was studied in a group of 20 rabbits whose blood serologic tests became positive within 1 month after inoculation with T. cuniculi. The titers in the rabbits infected with this organism were comparable both in height and in duration to those obtained in similar groups of rabbits with yaws or syphilis.

With continued strain passage, the initial reaction in both the testis and the skin tended to become more extensive and to exhibit a greater degree of induration. While an occasional lesion resembled a syphiloma, there was no indication of a permanent strain variation toward the syphilis type, however.

Studies on the biologic relationship between the causative agents of syphilis, yaws, and venereal spirochetosis of rabbits. II. Comparison of the experimental disease produced in rabbits. Charlotte McLeod and Thomas B. Turner. Am. J. Syph., Gonor. & Ven. Dis., 30: 455–462, 1946.

The authors report on the course of the experimental disease produced in rabbits by the organisms Treponema pallidum, Treponema pertenue, and Treponen cuniculi.

A strain of T. pallidum isolated Jamaica, B. W. I., from the lymph no of a patient with secondary syphilis w used for the syphilis infection; yaws i fection was produced by a strain of pertenue isolated from a typical fra boesiform lesion of a native Jamaica Negro with yaws; rabbit spirochetos was induced with a strain of T. cunicu which had been isolated in the laborator

Eighty rabbits were used in this e periment. The incubation period in t rabbits inoculated with T. pallidum wa on the average 19 days, the initial rea tion being a slight induration of the testi Indurated scrotal chancres developed 12 rabbits from 6 weeks to 3½ mont after infection. None of these anima developed scaly lesions of the scrotu or anal region similar to those observ in the yaws and cuniculi-infected rabbit nor were lesions of the glans or prepu found.

The incubation period of the testicul lesion in the rabbits infected with ya was 23 days on the average, all anima developing the typical granular orchit of yaws. In only one rabbit, howeve was there seen the marked enlargeme characteristic of the lesion produced T. pallidum.

In the rabbits infested with T. cunicu the incubation period averaged 21 day At the end of 1 month after inoculatio the testis had become slightly enlarg and moderately indurated. The indur tion in the cuniculi group was not quite marked as in the yaws group, and did no way approximate the reaction observ in the syphilis animals. Metastatic gen tal lesions arose on the scrotum, prepuc anus, and glans of all cuniculi rabbits.

Blood specimens were collected from a animals on the day preceding inoculati and at intervals of 1, 2, 4, and 6 mont thereafter, the Eagle flocculation te being used. Rabbits in the syphilis gro tended to develop their highest serolog titers earlier than the yaws or cunicu rabbits; serum titers of the syphilis ra bits fell more rapidly than those of th er two groups, however. Among the hilis animals, there was seen some cor- ation of serum titers with the degree of ivity of the testicular lesion, serum rs roughly paralleling the clinical rse of the disease. Among the yaws cuniculi rabbits, however, no such relation was found. Of 18 rabbits in yaws group, for example, titers of ums tested at 6 months in the 6 animals ich showed no lesions were about as h as in the 12 animals which exhibited ive lesions. All animals in every dis- e group became positive.

his study indicates that T. pallidum, pertenue, and T. cuniculi are organisms sely related biologically. T. cuniculi been regarded as nonpathogenic for n, but the authors state that in view of similarity of the disease picture pro- ed in rabbits by these three treponemal anisms, such pathogenicity should be arded as not established with finality.

he rapid treatment of early syphilis h the combined use of penicillin and pharsen. Herman N. Bundesen, Rob- M. Craig, George X. Schwemlein, ert L. Barton and Theodore J. Bauer. . J. Syph., Gonor. & Ven. Dis., 30: 475– , 1946.

n the light of the demonstration, by gle, Magnuson, and Fleischman, of rapeutic synergism between penicillin mapharsen in early rabbit syphilis, vas thought worthy to study clinically combination of penicillin and maphar- in human syphilis.

ne hundred and seven patients with kfield positive lesions of primary or ondary syphilis were treated by the owing schedule within the period Jan- y 2, 1944, through March 21, 1944: ium penicillin, 5,000 Oxford units ry 3 hours intramuscularly for 60 es over 7½ days (300,000 units total); pharsen, 40 mg. intravenously daily for njections during the period of peni- in administration (320 mg. total). ety-eight patients were previously un- ted for syphilis; the remaining 9 had eived varying amounts of arsenic and nuth with subsequent clinical and oratory evidence of relapse.

Results included prompt disappearance of surface spirochetes with rapid healing of lesions. Forty-three of the 97 seropositive patients became seronegative after treatment; of these, 15 relapsed, 5 were re-treated because of pregnancy, and 23 remained seronegative.

The average number of days required for seroreversal in patients with primary syphilis was estimated at 47.5; for those with secondary syphilis, 95.0; and for those who had relapsed after previous treatment, 248.0.

Thirty-four patients were considered to be treatment failures. These consisted of 10 patients with relapsing secondary syphilis, 3 with primary syphilis progressing to the secondary stage, 11 who exhibited serologic relapses, 7 who were seroresistant, 1 with neurorecurrence, and 2 who were possibly reinfected.

In view of these results, the treatment administered in this study is considered by the authors to be inadequate for early syphilis.

Oral penicillin treatment of gonorrhea. Alfred Cohn, Borris A. Kornblith and Isaak Grunstein. Am. J. Syph., Gonor. & Ven. Dis., 30: 485–489, 1946.

In a study of methods of obtaining maximal concentration of penicillin in the blood, the authors treated 111 gonorrhea patients in clinics.

The tablets used in this study contained varying amounts of calcium penicillin buffered with magnesium oxide and coprecipitated aluminum hydroxide and calcium carbonate. Four treatment schedules were evaluated. In group I, a total amount of 450,000 Oxford units of penicillin was administered orally in tablet form in 3 equally divided doses over a period of 4 hours, the patients taking 6 tablets (150,000 O. u.) at 2-hour intervals. In group II, a total amount of 300,000 O. u. of penicillin was administered orally in 5 equally divided doses over a period of 8 hours, each tablet containing 20,000 O. u. The patients swallowed 3 tablets (60,000 O. u.) every 2 hours until all tablets were taken. The patients of group III received a total dosage of 600,000 O. u. of penicillin divided into 10 tablets containing 60,000 O. u. each. Two tablets (120,000 O. u.) were taken every 2 hours for 8 hours. In group IV, a total amount of 600,000 O. u. of penicillin was given over a period of 7 hours as follows: 24 tablets, each containing 25,000 O. u. of penicillin, were given to the patient; 6 tablets (150,000 O. u.) were taken immediately, followed by 2 tablets (50,000 O. u.) every hour for the succeeding 6 hours. On the seventh hour, the patient was instructed to take the remaining 6 tablets (150,000 O. u.). The tablets administered to the patients in groups I and IV contained double the amount of buffering material used in groups II and III.

The diagnosis and determination of cure of gonococcic infection were established by repeated smears and cultures of the urethra and prostate in men and of the urethra and cervix in women. An average of four bacteriologic examinations over an average period of 3 weeks were performed before the patient was considered cured. In this study, bacteriologic findings reversed from positive to negative within 24 hours in all patients who responded to this form of therapy, remaining negative for the duration of the follow-up. No toxic effects were observed as a result of the oral administration of penicillin in the manner of this study.

In group IV, a cure rate of approximately 90 percent was obtained (treatment failure in 4 out of 50 patients), attributed to the hourly administration of penicillin. Also noteworthy was the fact that repeated doses of 50,000 O. u. of oral penicillin given at hourly intervals are sufficient to sustain a therapeutic effect when combined with a large initial and final dose of 150,000 Oxford units.

Asymptomatic neurosyphilis: prognosis. Richard D. Hahn and E. Gurney Clark. Am. J. Syph., Gonor. & Ven. Dis., 30: 513–548, 1946.

The authors report a study to determine the prognosis of asymptomatic neurosyphilis in 533 patients with at least two spinal fluid examinations and in 467 patients with at least two physical exam nations. These two groups, although n mutually exclusive, are analyzed sep rately throughout the study. In 40 pe cent of these individuals, very few whom were untreated, the observatio period was less than 2 years and in 3 percent it was more than 5 years.

This study considered the variabl which confront the physician dealing wit a patient who presents no clinical eviden of neurosyphilis—the variables bein race, sex, and age of the patient, trea ment prior to diagnosis of neurosyphili degree of positivity of the spinal fluid first examination, duration of syphilis the time of initial spinal fluid examin tion, and type and amount of treatmen received after the diagnosis of asympt matic neurosyphilis. Prognosis was d termined with respect to both spinal flui and clinical outcome.

It was found that the spinal fluid ou come and the probability of developin clinical neurosyphilis were not signi cantly different in males compared females, nor in white patients compare to Negroes. Since the Negro patients this study had received inferior trea ment to that of white patients, the ident cal outcome suggests a somewhat mo favorable prognosis in the former rac The longer the duration of syphilis t more strongly positive and the more sistant is the spinal fluid; in this grou therefore, the patients with late asympt matic neurosyphilis, despite better trea ment, did less well regarding cerebr spinal fluid outcome than did the patien with early asymptomatic neurosyphil when observed over a similar time perio It is claimed that spinal fluid improv ment is a relative but not an absolu guarantee against clinical progression a that lack of spinal fluid improvement an extremely grave prognostic sign po tending the development of parenchym tous neurosyphilis.

It is concluded that the longer t posttreatment follow-up of a group patients with asymptomatic neurosyphil who were treated, as in this group, pr dominantly by metal chemotherapy, t

ater is the percentage who will de-
op clinical neurosyphilis. The proba-
ty of developing clinical neurosyphilis
the tenth year of observation was 15.8
cent for the group as a whole, 36.3
cent in the patients whose spinal fluids
ame worse or remained unchanged,
only 6.8 percent in the patients whose
al fluids became negative or signifi-
tly improved.

n attempt was made to assess the
ue of tryparsamide, but no correlation
atever could be demonstrated between
amount of tryparsamide received and
er the final spinal fluid outcome or the
bability of developing clinical neuro-
hilis. In the small group given ma-
a therapy, the probability of clinical
gression was 9.5 percent at 5 years
h no increase in 10 years. There was
spinal fluid progression and 25 percent
ieved a negative fluid.

t is concluded that although adequate
ounts of routine therapy with triva-
arsenical and bismuth are of distinct
ue in the treatment of many patients
h asymptomatic neurosyphilis, fever
rapy is the most efficacious form of
atment in this disease.

he relative toxicity and therapeutic
ivity in experimental syphilis of bis-
th subsalicylate, bismosol, and bilipo-
Harry Eagle. Am. J. Syph., Gonor.
en. Dis., 30: 549–554, 1946.

his is a report on a reinvestigation
the toxicity and therapeutic efficacy
experimental rabbit syphilis of three
resentative bismuth compounds: (1)
aqueous solution of sodium and potas-
n bismuthotartrate (bismosol); (2)
ear, oily solution of α-carboxyethyl-β-
hyl-bismuthononoate (biliposol), rep-
enting the fat-soluble compounds;
(3) a suspension of bismuth sub-
cylate in oil, the preparation most
ely used in syphilis.

hese compounds were injected intra-
scularly into rabbits, a single injection
ng given about 6 weeks after their in-
testicular inoculation. Cure was de-
nined by lymph node transfers into
mal animals 6 months after treatment.
The three bismuth compounds proved similar in therapeutic efficacy, the data suggesting that the particular "fat-soluble" preparation was the most effective.

The present experiments therefore indicate that all three types of bismuth preparations studied are, mol for mol, from one-half to two-thirds as active as is mapharsen in the treatment of experimental syphilis. Two of these compounds, the oily suspension of the subsalicylate, and the oily solution of the substituted nonoate (biliposol) provide margins of safety between the effective and toxic levels from 6 to 8 times greater than does mapharsen.

The effect of streptomycin on experimental syphilis infection of rabbits. R. A. Fisken and O. M. Gruhzit. Am. J. Syph., Gonor. & Ven. Dis., 30: 581–585, 1946.

The authors report experiments in which two different courses of streptomycin had no effect on the virulence of Treponema pallidum in rabbit syphilis.

Rabbits were inoculated in one testicle with 0.5 cc. each of Treponema pallidum, Nichols' strain, macerated tissue suspension. Six weeks later the testicular lesions presented from 25 to 100 percent consolidation in the form of a nodule with or without surrounding edema and contained one or more motile spirochetes per field under darkfield examination. Rabbits showing lesions in ascendency without chancre formation were observed for regression of growing lesions and the rate of disappearance of spirochetes from the lesions.

The animals were first divided into groups of 4 to 6 rabbits each, and each group was treated with 1,000, 2,000, 3,000, and 4,000 subtilis units, respectively, of streptomycin per kilogram per day in 3 divided doses daily for a 20-day period. The rabbits were subsequently divided into groups of 5 to 8 rabbits each and given 6,000, 8,000, and 10,000 subtilis units, respectively, per kilogram in 3 divided doses per day for a 13-day period. Darkfield examinations and observations on the regression rate of the lesions were made at 2-day intervals during the first week and at irregular intervals during the following weeks.

The results showed no abrupt regression of lesions during the first period of 3 weeks; on the contrary, some of the lesions continued to enlarge and the spirochetes remained actively motile, the lesions spreading, in some rabbits, to the opposite uninoculated testis. The 1,000- to 4,000-unit dose of streptomycin therefore was seen to show no evidence of antispirochetal action.

In the second treatment period, observations of change in lesions and darkfield examinations were made once or twice a week. Lesions were seen to regress slowly but no more rapidly than in untreated rabbits whose lesions were punctured frequently with a needle. Twenty-six days after termination of treatment, lesions were present in 14 rabbits; in 8 animals the lesions were darkfield positive for spirochetes.

Penicillin in the treatment of gonococcal infections. Analysis of the results reported in the literature through 1945. Manson Meads and Maxwell Finland. Am. J. Syph., Gonor. & Ven. Dis., 30: 586–609, 1946.

The authors herein analyze the results of the penicillin treatment of acute gonorrhea in 21,936 cases collected from the literature of May 1943 to December 1945.

In a discussion of penicillin administered intramuscularly in aqueous solutions to 18,579 patients, the cure rate was found to be 91.3 percent. About one-half the patients had received between 100,000 and 149,000 units, another one-third had been given between 50,000 and 99,000 units, while more than one-half those remaining had received between 150,000 and 199,000 units.

In 3,342 cases reported from clinics in which strict bacteriologic and clinical control was maintained for over 3 weeks, there was produced a cure rate of 90.6 percent. In 15,237 cases, also with probably careful control, there was a cure rate of 91.4 percent. All cases showed a steady increase in the percentage of
cures with increase in the interval
tween the first and last dose. Lower c
rates were obtained with a single dose
compared with the same amount given
divided doses.

Either the same or a larger dose v
usually given in the second course, th
being 163 failures among the 711 cases
treatment failure discussed, a cure r
of 77.1 percent. Treatment with a thi
larger dose of penicillin failed to effec
cure in 54 of 130 of these failures, a c
rate of 58.5 percent. Thus success
courses of penicillin in increasing do
and sometimes with the same dose,
sulted in further cures in some of
patients who failed to respond to a gi
dose, although each successive course p
duced a decreasing percentage of cu

Clinically, the majority of patients
came asymptomatic within from 2 to
hours after the start of penicillin tr
ment. Clinical response is about
same after penicillin in beeswax-pea
oil as after watery solutions. Sympto
and discharge persist somewhat longer
patients adequately treated with o
preparations of penicillin than in th
given intramuscular therapy.

In considering the effect of penici
on the various complications of gon
rhea, it is stated that epididymitis
sponds rather slowly to penicillin in ab
the same manner as it does to the sulf
amides, additional penicillin usua
being required in severe cases in wh
abscess formation is suspected. M
cases of arthritis without evidence
fluid in the joints seem to respond rapi
to systemic therapy alone, although
pain may persist until the products
inflammation have been absorbed. H
ever, patients in whom there is free fl
should receive intra-articular as well
systemic penicillin therapy, especially
gonococci are cultured from the joint flu
Mild cases of pelvic inflammatory dise
respond well to penicillin, but chro
cases may need additional therapy,
acerbations often resulting from the pr
ence of unsterilized pockets of necro
Ocular infections, such as gonococcic c
junctivitis, respond rapidly to parente

s of 50,000 to 250,000 units of peni-
n, in addition to the recommended
inistration of penicillin drops to the

list of 149 references is included.

. Med., Phoenix

e effect of tobacco smoke on Kahn and Hinton reactions. Edward L. Breazeale. 3: 239–240, July 1946.

udies on the effect of diluting fluids on serological titres. I. A comparison of normal saline, 2.5 percent saline and pooled negative sera as diluting agents. Edward Breazeale and Theodore R. Reusser. 3: 304–307, Sept. 1946.

philis serology as affected by zeolitic base exchange. Edward L. Breazeale, Theodore R. Reusser and L. F. Pierce. 3: 371–373, Nov. 1946.

. J. Dermat., London

ospect and retrospect. Lecture I. Henry MacCormac. 58: 97–111, May–June 1946.

quiry into the social background of convicted women at Holloway prison infected with venereal diseases. K. Edkins. 58: 228–235, Sept.–Oct. 1946.

. J. Urol., London

fection of the urinary tract in the female due to Trichomonas vaginalis. Bryan Williams. 18: 63–65, June 1946.

ad. J. Pub. Health, Toronto

blic health nursing in the control of syphilis and gonorrhea. Pearl Stiver. 37: 332–333, Aug. 1946.

sgow M. J., Glasgow

e diagnosis and control of gonorrhea by bacteriological cultures; with a preliminary report on a new method for transporting clinical material. 27: 131–142, May 1946.

an M. Gaz., Calcutta

simple method of estimating the titre of Kahn antigen. N. Seshadrinathan and B. A. Srinivasan. 81: 357, Sept. 1946.

h J. M. Sc., Dublin

st-arsphenamine jaundice—experience in a military hospital. J. P. Laffan. No. 245: 168–170, May 1946.

ennessee M. A., Nashville

commended schedules for the treatment of early syphilis. Special letter to physicians in Tennessee. R. H. Hutcheson. 39: 443–444, Dec. 1946.

J. Thoracic Surg., St. Louis

Treatment of syphilitic aneurysms by cellophane wrapping. J. Karl Poppe and H. Renault de Oliveira. 186–195, June 1946.

Journal-Lancet, Minneapolis

Occlusions of arteries supplying the brainstem and cerebellum. (Syphilis as a cause of thrombosis of the basilar artery.) John E. Skogland. 66: 385–388, Nov. 1946.

Kentucky M. J., Bowling Green

Minutes of the ninety-sixth annual session of the House of Delegates of the Kentucky State Medical Association held at Paducah, September 30, October 1, 2, 3, 1946. Report of the Advisory Committee to the Director of hospital and mental hygiene. 44: 396–472, Dec. 1946.

Lancet, London

Treatment of yaws with penicillin. K. R. Hill, G. M. Findlay and A. Macpherson. 2: 522–525, Oct. 12, 1946.

Repeated abortions, miscarriages, and stillbirths. Value of antisyphilitic treatment. Raymond G. Cross. 2: 754–755, Nov. 23, 1946.

M. Clin. North America, Philadelphia

Penicillin in the treatment of syphilis. Paul A. O'Leary. 30: 895–902, July 1946.

The use of the newer sulfonamides and antibiotics in intestinal diseases. (Ulcerative colitis due to virus of venereal lymphogranuloma.) J. Arnold Bargen. 30: 919–931, July 1946.

Chancroid of the uterine cervix. Lois A. Day. 30: 957–964, July 1946.

M. J. Australia, Sydney

A report on the psychopathic states (tertiary syphilis) of the Australian Imperial force in the Malayan campaign. C. R. Boyce. 2: 339–345, Sept. 7, 1946.

An increase in syphilitic infections. Correspondence. E. Sydney Morris. 2: 646, Nov. 2, 1946.

Hormones in gynaecology. (Including gonococcal vaginitis.) W. Ivon Hayes. 2: 663–666, Nov. 9, 1946.

Surg., Gynec. & Obst., Chicago

The use of tyrothricin in surgical infections. (Including syphilitic ulcers.) Donald D. Kozoll, Karl A. Meyer, William S. Hoffman and Seymour Levine. 83: 323–342, Sept. 1946.

The excretion and concentration of penicillin and streptomycin in the abnormal human biliary tract: I. Gall bladder. Jerry Zaslow, Virgil S. Counseller and Fordyce R. Heilman. 84: 16–20, Jan. 1947.

Diagnosed Cases of Venereal Diseases Reported for the First Time, Fiscal Y 1941–47

[Known military cases are excluded.]

Year	Syphilis					Gonorrhea	Other venereal diseas		
	Primary and secondary	Early latent	Late and late latent	Congenital	Not stated		Chancroid[1]	Granuloma inguinale	Ly gra lom ner
	In States and Territories								
1941	68,319	108,864	201,939	17,952	83,252	193,032	3,278	648	
1942	78,556	118,300	206,472	18,921	62,159	218,554	5,649	1,278	
1943	84,629	150,703	256,908	17,942	65,915	280,923	8,502	1,750	
1944	80,316	125,379	208,830	15,707	42,493	307,504	8,029	1,771	
1945	78,649	104,930	146,475	14,730	23,365	293,694	5,623	1,869	
1946	96,222	110,652	129,080	14,181	20,767	372,594	7,333	2,216	
1947[2]	113,000	109,000	126,000	14,000	27,000	432,000	9,200	2,500	
	In continental United States								
1941	67,958	108,658	201,190	17,592	82,443	191,306	3,265	647	
1942	75,704	116,433	202,216	16,924	60,968	212,384	5,426	1,271	
1943	82,230	148,909	252,995	16,173	64,611	275,648	8,333	1,746	
1944	78,418	122,390	203,396	13,576	40,419	300,585	7,861	1,758	
1945	77,007	101,135	142,731	12,339	23,103	284,994	5,481	1,846	
1946	94,957	107,336	125,836	12,106	20,683	364,853	7,058	2,204	
1947[2]	112,000	106,000	124,000	12,000	27,000	424,000	8,900	2,500	

[1] Includes some unspecified "other venereal diseases."

[2] Estimated on the basis of reports for the first half of fiscal year.

NOTE: These data are "final" for fiscal years 1941–46 and include all late receipts, corrections, etc., report the present time, and may therefore differ from previously published material.

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FEDERAL SECURITY AGENCY

UNITED STATES PUBLIC HEALTH SERVICE

THOMAS PARRAN, *Surgeon General*

Editor: J. R. HELLER, Jr., *Medical Director*
Chief, Venereal Disease Division

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nsiderations With Respect to the Application in ivate Practice of Penicillin Therapy for Early Syphilis

Onis G. Hazel, M. D., Oklahoma City, Okla.

ince Ehrlich's discovery of arsphena-
ie, physicians have been searching for
ear-cut schedule of treatment for early
hilis that would give a high percent-
of cure with safety. This search has
ılted in the use of many new arsenical
heavy-metal preparations, used alone
in combination, and in varying time-
age schedules. Many of these prep-
tions have given good results but re-
red long periods of time. Conse-
ntly, they resulted in a high rate of
se from treatment, and, when given in
nsified doses for shorter periods, in-
ved considerable risk for the patient.

he medical world was given new hope
its fight to control syphilis by Ma-
ey's observation in 1943 of the tre-
emicidal effect of penicillin on living
ponema pallidum. Since the original
ort of Mahoney (*1*) on the successful
ıtment with penicillin of four syphi-
patients, penicillin has gradually
ıe into general use in the treatment of
ly syphilis. During the war, peni-
n alone, or in combination with arsenic
/or bismuth, was administered widely
the Army, Navy, and special civilian
id treatment hospitals. The small
ount of penicillin then available lim-
l its use to the treatment of those per-
s with syphilis in an infectious stage
ose continuing infectivity was deemed
nore than ordinary significance to pub-
health. It was found very early that,
ause of the rapid excretion of peni-
in, the drug would have to be given by
uent injections both day and night,
rder to maintain adequate blood con-
trations. Therefore, penicillin therapy
syphilis could be given only on an in-
ient basis.

enerally, the results of studies from
lian rapid treatment hospitals on in-
sive 8- to 10-day in-patient schedules
therapy, utilizing penicillin in com-
ation with arsenic and bismuth, have
wn this combination of drugs to be effective in the treatment of early syphilis. As to penicillin alone as a therapy, much of the early data on the results of treatment of early syphilis were obtained by medical officers in the armed services. Owing to the changes in assignment for both the patient and the physician, the statistics are of limited value. They do suggest, however, that by administering a total dose of 2,400,000 units of penicillin a high percentage of cases of early syphilis can be cured by penicillin alone. The percentage of cures may be further increased by the application of a greater penicillin dosage and possibly by the more recently introduced use of crystalline penicillin. It is of interest to note that both the Army and Navy have increased the total dosage of penicillin to 6,000,000 units for seronegative primary and to 8,000,000 units for seropositive primary, secondary, and early latent syphilis. Judging from studies made by the Army and Navy, and other large-scale studies by clinicians throughout the country, it is apparent that we now have available several safe, effective schedules for treating early syphilis on an in-patient basis.

During the transition period in which short in-patient treatment schedules based largely on penicillin have been replacing the heretofore standard 70-week arsenic and bismuth schedule, physicians in private practice have been at a loss as to how to treat patients who could not be hospitalized or who did not wish to be hospitalized. Because of widespread publicity as to the availability and effectiveness of penicillin, physicians are being more and more pressed by their syphilis patients for penicillin treatment. A large number of such patients may be referred to rapid treatment hospitals, or hospitals having rapid treatment facilities. In many instances, however, it is desirable that the treatment of early syphilis be accomplished by the private physician on an out-patient or office basis. This has made it necessary for physicians to consider an ambulatory type of treatment.

Selection of the most desirable method of ambulatory treatment necessitated considerable study of the various procedures that had been developed. Romansky and Rittman's (*2*) development of a mixture of penicillin in beeswax and peanut oil, by which absorption and excretion were delayed, seemed to offer a possibility for an ambulatory type of treatment. In reporting on the use of his mixture, administered intramuscularly in single daily injections of 300,000 units each, Romansky (*3*) indicated that in order to destroy the Treponema pallidum it was not necessary to reach such high levels of concentration in the blood as are required to destroy bacteria such as the pneumococcus and meningococcus.

The advisability of administering an arsenical compound in addition to penicillin was indicated in Eagle's (*4*) study, which showed that in experimental animals doses of penicillin and mapharsen which were subcurative when administered alone were therapeutically effective when administered together. His conclusion was that penicillin and mapharsen act synergistically.

A combination of drugs rather than penicillin alone was further indicated by various published (*5*) and unpublished evaluation studies which showed that a larger percentage of patients had to be re-treated when penicillin was used alone. For example (*6*), a schedule utilizing 1,200,000 units of penicillin, given in 16,667 units every 3 hours for 9 days with 4 to 6 mg. of arsenoxide per kilogram of body weight (or a total of 300 mg. in persons weighing over 60 kg.) and 600 mg. of bismuth (3 injections) showed a 13.6-percent re-treatment rate at the end of 1 year's observation. By comparison, a penicillin schedule utilizing 1,200,000 units given in doses of 20,000 units every 3 hours for 8 days showed a 24.1-percent re-treatment rate at the end of 1 year of observation.

These and other data indicated that the Romansky mixture of penicillin, together with small doses of arsenic, pr vided a formula with which early syphili could be treated in my own practice wit safety and convenience to the patien Therefore, I started a series of 35 patient with early syphilis on the following trea ment schedule: Ten daily injections 300,000 units of penicillin in beeswax an oil were given intramuscularly with a initial intravenous injection of mapharse (0.04 gm. for women and 0.06 gm. f men); a similar dose of mapharsen wa given every other day for 5 doses, an thereafter once weekly for a total of 2 injections. Treatment was completed b 5 weekly injections of bismuth subta trate. In one case of syphilis with a ser logic relapse, the penicillin in oil and bee wax and the mapharsen for another 2 injections were repeated. The additio of arsenic therapy in primary seroneg tive cases may be entirely unnecessary t obtain a high percentage of cures, but does assure the physician a relatively sa follow-up type of therapy.

It is important to point out that rece preliminary reports indicate that larg amounts of penicillin alone may acco plish the same result as smaller qua tities of penicillin with the addition arsenic and bismuth. Thomas (*7*), r porting on patients treated for seconda syphilis with 4,800,000 units of penicill in beeswax and oil (600,000 units daily between August 1945 and July 19 showed that 62.2 percent had attained seronegative status after a follow-u period of at least 6 months. Although t study was conducted on an in-patie basis, the schedule of therapy employ is amenable to out-patient use. Schedu employing substantially larger tot amounts of penicillin in beeswax and o administered as far apart as twice week over periods up to as long as 2 month are being studied by various clinicians.

In the management of penicillin-treat patients, there are a number of importa factors to be kept in mind by the priva practitioner. One of these is the need f close posttreatment observation, sin some cases of syphilis treated with pen cillin have serologic and cutaneous r lapses at varying periods of time aft apletion of one initial treatment. Such apses are due to the failure of peni- in to destroy all of the Treponema lidum. These cases are both a public lth problem and a treatment problem ause, with cutaneous relapse following ologic relapse, the patient again be- nes infectious. Therefore, all private sicians utilizing penicillin in the treat- nt of syphilis are obliged to observe ir patients closely for clinical and ologic relapse for at least 1 year fol- ing treatment.

enerally, most relapses occur between fourth and ninth months after treat- nt, with the clinical relapse usually ceded by serologic relapse. Quantita- e serologic tests performed at monthly ervals in the follow-up of patients ated with penicillin will indicate the nd toward seronegativity or positivity. two or three quantitative tests show a etitious rising trend it is an indication re-treatment. The serologic test in st cases will become negative or reach lowest point between the third and elfth months after rapid treatment. e duration of the disease prior to atment seems to have a definite bear- ; on the rapidity of serologic reversal, ., the longer the duration, the greater length of time required for a maxi- m response.

Moore (*8*) and Eagle state that quan- ative serologic tests to determine re- n titer are comparable only when ried out in the same laboratory by same technic. The selection of a oratory is therefore another important tor to be considered by the physician. nerally, most State laboratories may relied upon for the accurate perform- ce of such tests. Additional resources the laboratories maintained at many the rapid treatment centers. For ex- ple, prompt reports have been fur- hed by the laboratory of the rapid atment hospital located at Will Rogers ld in Oklahoma City.

Since the rapid treatment hospitals, or spitals with rapid treatment facilities, cept patients referred by physicians, following information or referral and consultation service may prove helpful. Rapid treatment hospitals are available not only for hospitalization of patients for treatment, but the physicians on the staffs offer consultation service to all physicians desiring assistance.

The busy general practitioner may not have time for detailed analyses of the many specialized laboratory reports that are indicated. Demands on his time may even preclude his treating certain cases. In these circumstances he may refer patients to the rapid treatment center for confirmatory diagnosis alone and subsequent return to him for treatment, or the patient may be referred for confirmatory diagnosis and rapid treatment at the hospital. For those physicians desiring such service, the following information is pertinent.

A list of rapid treatment hospitals or general hospitals having treatment facilities may be obtained by writing to the department of health of the State in which the physician lives. In general, it is desirable for patients to be referred by the physician to the hospital nearest him for the treatment of: (1) all primary syphilis, both seronegative and seropositive; (2) all secondary syphilis; (3) early latent syphilis usually of not more than 1 year's duration; (4) all syphilitic pregnant women, regardless of stage of syphilis. Treatment is without cost to the patient. Admission is arranged through the referring physician by telephone call or letter to the medical director of the hospital. The call or the letter should give the diagnosis of the patient by stage of syphilis or duration of infection, a brief resumé of the history and physical examination, and an outline of any previous treatment. All data obtained from laboratory examinations, such as blood serology and spinal fluid findings, should also be given.

At the Oklahoma City rapid treatment center, as at some of the other hospitals, posttreatment examinations may be performed by the referring physician or, if so desired, at the treatment hospital. My own experience has shown the staff to be quick and efficient, making regular reports on the posttreatment progress of my patients and reporting promptly on patients referred for consultation.

Aside from reducing syphilis by early and adequate treatment, the Oklahoma City rapid treatment hospital is treating a sizable number of cases of syphilis in various stages. These cases will provide dependable statistical data, which, along with information from other such centers, will help to establish therapeutic schedules in terms of drugs, dose, interval, response, complications, and failures. The unpublished reports of the Oklahoma City rapid treatment hospital are very encouraging.

The number of patients treated by this center and by private physicians has greatly increased since the Oklahoma City demonstration, case-finding, treatment, and educational program sponsored last year by the county medical society and the State health department, in cooperation with the United States Public Health Service. During the demonstration, 48,874 blood tests were performed, 1,923 being positive for syphilis. Of these, 1,058 are known to have been treated. Also, 710 cases of gonorrhea were discovered. Another important result of this program is that hundreds of persons have consulted and are still consulting their private physicians for early diagnosis and treatment. In my own practice, I am now seeing 10 times as many cases of early syphilis as came to me before the educational program.

Although the results of the application of the improvised combination schedule of treatment referred to previously are based on a small number of cases with a short period of observation, it was observed that at the end of 6 months all 5 primary seronegative cases maintained serologic (blood and spinal fluid) and clinical negativity; of the 7 primary seropositive cases treated, all were serologically and clinically negative at the end of 6 months; 12 of the 14 secondary cases treated were serologically negative, with the two remaining cases being seropositive, one of these cases being re-treated for serologic relapse during the 6-month period; 2 cases of a group of 10 patients treated for early latent syphilis (months' to 4 years' duration) we seronegative and the remaining 8 seropos tive at the end of 6 months. Howeve the 8 early latent cases still seropositi at the end of 6 months showed a gradu reduction in the quantitative Kahn tite This series of cases is too small and t posttreatment observation period t short to permit evaluation of the trea ment schedule. Theoretically, it shou give good results when compared wi other treatment schedules.

Herxheimer reactions.—In all cas of primary and secondary syphilis the was a mild Herxheimer reaction wi temperatures ranging from 99.5° to 103. F. It has been shown that either penic lin or mapharsen alone will produce Herxheimer reaction so it is not surpri ing that both penicillin and maphars administered the first day gave an ev greater reaction.

Local reactions.—Tenderness, indur tion, and skin erythema at sites of i jection were variable in different patien and were more prominent in the obe patients, probably due to the greater di culty in getting the penicillin, oil a wax preparation into the muscle tiss The local reactions all subsided within to 5 days, with the exception of one i jection which required surgical draina Five patients complained of local pa along the course of the vein, followi the rapid injection of mapharsen. The were all easily relieved by cold packs a the administration of 1½ grains seconal.

Skin reactions.—Three patients dev oped mild urticaria, one after the fif injection and two after the seventh i jection. All of these three patients h previously had penicillin for other me ical conditions. Benadryl in 50-mg. dos administered three times a day seem to reduce the reaction, and in neither ca was it necessary to discontinue treatme

One patient developed a fine vesicul dermatitis on the ninth day. This w believed to be due to the mapharsen, b since it cleared up after 5 days t arsenic was continued without furth reaction.

Five patients had definite exacerbaon of previous fungus infections of the eet and groins. Two of these patients eveloped mild dermatophytids of the ands.

SUMMARY

A schedule of penicillin-arsenic-bisuth treatment given on an ambulatory asis over a period of 27 weeks for early yphilis was devised in an effort to fill gap that exists during the transition eriod in which short treatment schedles based largely on penicillin are relacing the heretofore standard 70-week rsenic-bismuth schedules. During this ransition period clinically established enicillin schedules suitable for the office reatment of ambulatory patients have een lacking, and yet many patients canot be hospitalized in order to receive hose schedules which have become clincally established. The ambulatory chedule described represents a conservaive compromise based on the rational ssumption that certain amounts of peniillin with added arsenic and bismuth ight be expected to give a reasonable ercentage of satisfactory results. This chedule is admittedly far from ideal, ven should further observation prove hat it is clinically satisfactory.

It is probable that many other physiians throughout the country confronted vith the same problem have improvised heir own tentative schedules while waiting the establishment of a more early ideal course of treatment. The uthor believes that the schedules reuiring daily injections of penicillin in il and beeswax alone over a period not xceeding 2 or 3 weeks that are being tudied by several clinicians are an aproach to that ideal. When such a schedle has been established and made known videly among private physicians, the hysician in private practice then will be n a strategic position to assume the najor role in the future control of syphiis through diagnosis and treatment. Aleady the general practitioner is assumng a major part of the responsibility for gonorrhea control because of penicillin administered either in 2 or 3 hours in aqueous solution or in a single dose in oil and beeswax (300,000 units).

Meanwhile, every private physician can contribute to the control of syphilis by suspecting it, by excluding it, or verifying its presence, and by referring to rapid treatment centers or other in-patient treatment facilities all patients for whom ambulatory office treatment is not practicable. Control will be further advanced if the physician will remember always to concern himself with the epidemiology of the disease, including an attempt to obtain from each of his infectious patients information about sexual contacts who may also be infected, and causing these contacts to be examined either by himself, a colleague, or by the health department.

REFERENCES

1. Mahoney, J. F.; Arnold, R. C.; Harris, A.: Penicillin treatment of early syphilis: A preliminary report. Ven. Dis. Inform., 24: 355–357, 1943; Am. J. Pub. Health, 33: 1387–1391, 1943.
2. Romansky, M. J.: Rittman, G. E.: Penicillin. 1. Prolonged action in beeswax-peanut oil mixture. 2. Single injection treatment of gonorrhea. Bull. U. S. Army M. Dept., No. 81: 43–49, 1944.
3. Romansky, M. J.; Rittman, G. E.: Penicillin blood levels for 24 hours following a single intramuscular injection of calcium penicillin in beeswax and peanut oil. New England J. Med., 233: 577–582, 1945.
4. Eagle, H.; Magnuson, H. J.; Fleischman, R.: The synergistic action of penicillin and mapharsen (oxophenarsine hydrochloride) in the treatment of experimental syphilis. J. Ven. Dis. Inform., 27: 3–9, 1946.
5. Heller, J. R., Jr.: Results of rapid treatment of early syphilis. J. A. M. A., 132: 258–263, 1946.
6. Unpublished cumulative report. Serologic and clinical results of treatment of patients with secondary syphilis in rapid treatment centers, U. S. Public Health Service, Washington 25, D. C. August 1946.
7. Thomas, E. W.; Landy, S.; Cooper, C.: Rapid treatment of early syphilis with penicillin in beeswax and oil. J. Ven. Dis. Inform., 28: 19–23, 1947.
8. Moore, J. E.: Penicillin in Syphilis. Springfield, Ill., Charles C. Thomas, 1946. P. 128.

Penicillin Therapy for Syphilis in Pregnancy[1]

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The advent of penicillin therapy has modernized the treatment of syphilis. The advantages of this antibiotic over arsenicals and heavy metals are numerous, and make the use of penicillin particularly desirable in the treatment of syphilis in the pregnant woman. Before the introduction of intensive therapy, the old clinical routine schedules were directed during pregnancy primarily against the transmission of the disease from the mother to her offspring. Very little could be expected by way of a cure of the disease in the mother, because therapy given during a part of the prenatal period could offer only a short course of treatment compared to the then accepted 18- to 24-month periods of treatment.

Various intensive schemes of massive arsenotherapy were subsequently devised in which 7- to 12-day spans of treatment were utilized. Massive arsenotherapy, however, induced a high percentage of toxic reactions. In order to diminish the incidence of toxic effects, smaller dosages of the arsenicals were used at Bellevue Hospital and fever therapy was added to augment the effect of the arsenicals. This plan of rapid treatment was employed at Bellevue Hospital in 43 pregnant women with early syphilis (*1*). There was 1 maternal death from arsenical encephalopathy.

The ideal plan of antisyphilitic therapy in the pregnant woman should include the following:

1. Freedom from serious toxic effects.
2. Prevention of the transmission of the disease from mother to baby.
3. Cure of the maternal syphilis.
4. Cure of the congenital syphilitic child in utero in cases of early infectious maternal syphilis, beyond the sixteenth week of pregnancy, when syphilis may have been already transmitted.
5. Adequate therapy in a short period of time.

Penicillin therapy best fulfills these conditions. It has yielded very encouraging results and has been singularly free from severe toxic reactions. At the same time it permits full courses of treatment comparable to the 7- to 12-day intensive arsenotherapy schemes. Numerous investigators have demonstrated that penicillin is transmitted through the placenta (*2, 3, 4, 5, 6*). In some of the patients in this study, treatment was started only a short time before delivery, and healthy babies resulted. In at least some of the cases it is probable that penicillin was instrumental not only in preventing transmission of the disease, but also in curing congenital syphilis in utero.

MATERIAL STUDIED

There were 259 patients studied in this report, and for study purposes the total number of patients was divided into 3 groups. Group 1 consists of 149 patients who were treated during pregnancy. Group 2 consists of 84 patients treated prior to pregnancy. Group 3 consists of 26 patients who were re-treated for relapse or reinfection following their initial treatment (23 relapsed or were reinfected during pregnancy and 3 relapsed prior to pregnancy).

Table 1 illustrates the stage of syphilis and other data pertaining to the 259 patients. Early infectious syphilis was present in 233 patients, and latent syphilis in 26 patients.

The term "early infectious syphilis" denotes seronegative darkfield-positive

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[1] From the Rapid Treatment Center, Bellevue Hospital, and the Divisions of Dermatology and Syphilology, Obstetrics and Gynecology, Pediatrics and Medicine (Third Medical and Surgical Divisions), Bellevue Hospital, and the Departments of Dermatology and Syphilology, Obstetrics and Gynecology, Pediatrics and Medicine, New York University College of Medicine. Aided by grants from the U. S. Public Health Service.

TABLE 1.—*Material studied*

	Number	Original diagnosis					Relapse before or during pregnancy		Age		Color			Marital status				
		Seronegative primary	Seropositive primary	Primary and secondary	Secondary	Latent	Serologic	Serologic and clinical	Average	Range	White	Negro	Puerto Rican	Single	Married	Widowed	Divorced or separated	Unknown
atients treated during pregnancy	149	3	8	17	95	26	----	-----	22.2	14–38	30	116	3	68	70	4	5	2
atients treated prior to pregnancy	84	5	14	14	51	0	----	-----	22.5	16–35	17	67	0	47	31	0	5	1
atients who relapsed or were reinfected after initial treatment and were re-treated prior to or during pregnancy.	26	0	2	5	19	0	7	19	22	16–30	4	20	2	8	16	0	1	1
Total	259	8	24	36	165	26	7	19	22+	14–38	51	203	5	123	117	4	11	4

rimary syphilis, seropositive darkfield-
sitive primary syphilis, and secondary
philis. Latent syphilis denotes those
ses in which there are no demonstrable
philitic lesions.

Of the 26 patients who relapsed or were
infected, 19 manifested clinical dark-
eld-positive lesions accompanied by a
se in the quantitative serologic test for
philis (STS) ; 7 showed only a rise in
e quantitative STS.

Two quantitative serologic tests for
philis were employed in this study.
ne was a titered complement fixation
st (Wassermann titer) ; the other was
Kahn test, carried out in serial dilu-
ns (quantitative Kahn). The latter
as reported in units of 1, 2, 3, 4, 8, 16,
, 64, 128, and so on.

In addition to the syphilitic infection,
me of the patients had concurrent dis-
se. Gonorrhea was present in 44 pa-
nts, chancroid in 2, pulmonary tuber-
losis in 7, rheumatic cardiac disease in
congenital cardiac disease in 1, sickle
ll anemia in 1, epilepsy in 1, and acute
rulent otitis media in 1.

REACTIONS TO PENICILLIN THERAPY

Leavitt (*7*) and Lentz et al. (*8*) re-
rted in 1944 and 1945 that penicillin produced uterine contractions which in some instances resulted in abortion or premature delivery. In a subsequent publication Ingraham et al. (*9*) felt that abortion in the course of penicillin therapy constituted a type of therapeutic shock. They considered such an accident a real threat, and suggested its avoidance by reducing the initial doses of penicillin during the first 48 hours. In a carefully reviewed series of 156 prenatal patients at Bellevue Hospital (*10*), not a single instance of abortion or premature labor was encountered that could be ascribed definitely to penicillin therapy. In all cases, penicillin was administered in full dosage from the start of treatment.

In the present series, none of the early or late abortions or premature deliveries during treatment was attributable to penicillin, nor were any of these accidents encountered subsequent to therapy attributable to penicillin. Goodwin and Moore (*11*) noted that the incidence of abortion among penicillin-treated syphilitic women was less than the normally expected incidence of these accidents in pregnancy. In the 173 patients in this study who received penicillin during pregnancy there were 12 early or late abortions or premature deliveries, an incidence of 6.9 percent. Three of the 86 pregnancies in the

84 patients in this series who were treated prior to the onset of pregnancy ended in one or another of these accidents, an incidence of 3.4 percent. Both of these figures are below the expected range of such accidents in normal pregnancies.

Of the 252 patients with early syphilis in this study (233 plus 19 darkfield-positive relapses), there were 32 Herxheimer reactions. This was the most common reaction. It is interesting to note that although urticarial lesions are encountered with some frequency in penicillin therapy, not a single instance of urticaria occurred in this series. Arsenoxide was administered along with penicillin to 82 patients, 15 of whom complained of vomiting following the administration of the arsenical.

TREATMENT SCHEDULES

Various schedules were employed at Bellevue Hospital in the treatment of these patients. Starting in January 1944, the amount of penicillin used was the same as that in effect for the treatment of all early infectious syphilis at the Bellevue Hospital rapid treatment center. The lowest dosage was 600,000 units of penicillin (10,000 units every 3 hours for 60 doses). The dosage was later increased, and in one schedule arsenoxide was added. The treatment schedules are shown in tables 2, 3, and 4.

PLAN OF STUDY

The follow-up study of these patients after treatment consisted of a monthly examination, including a quantitative STS, for 2 years. Not all patients kept their appointments; in some instances there were lapses of several months.

A serologic test for syphilis was done on the baby at 1 week of age, and at monthly intervals thereafter to the sixteenth week. If the initial STS was positive, it was repeated at weekly intervals until negative, or until the diagnosis of congenital syphilis was established. X-rays of the long bones were taken at 1, 4, and 16 weeks. A baby was called nonsyphilitic if, at 16 weeks, there was no clinical evidence of syphilis, and the STS and X-rays of the long bon
were negative. Many of the babies wei
followed for one year or more.

It was not always possible to adhei
to this schedule of follow-up, as som
of the babies were born at other hospita
and were not seen at Bellevue Hospit
until several weeks after birth. Afte
the initial visit, however, the routine wa
followed.

RESULTS OF PREGNANCY IN TREATED PATIENTS

Group 1: Patients treated during pre
nancy.—Table 2 shows the results in th
149 patients who were treated durir
pregnancy. The diagnosis of early i
fectious syphilis was made in 123 p
tients; 26 were diagnosed as late
syphilis.

One hundred and fourteen pregnanci
resulted in nonsyphilitic babies. Sixte
pregnancies resulted in "probably no
syphilitic" babies, but the follow-
period was less than 16 weeks. Neverth
less, sufficient data were available regar
ing physical examination, serologic tes
and X-rays to warrant the opinion th
the babies had escaped infection. T
pregnancies ended in early or late abo
tions or premature deliveries, but syphil
was excluded as the cause. Thus, a tot
of 140 pregnancies (94 percent) had no
syphilitic end results.

There were three cases of congenit
syphilis (2 percent) in the group.

In addition, six pregnancies ended di
astrously. No information is availab
regarding the possible role that syphil
played in these six accidents. Four
them were late abortions, one was
neonatal death at 10 weeks, and one w
a neonatal death in a premature deliver
Because syphilis may be a cause of la
abortion and of premature delivery, a
because of the absence of information
the contrary, these disastrous resul
were considered as possibly due
syphilis.

Thus, syphilis was definitely or possib
the cause of unfavorable results in ni
cases (6 percent).

In one case of congenital syphilis, t

Treatment schedule	Diagnosis	Number of patients	Duration of pregnancy at onset of treatment			Term	Premature	Result of pregnancy				
			Less than 16 weeks	16-32 weeks	More than 32 weeks			Nonsyphilitic baby	Probably nonsyphilitic baby[1]	Disastrous result not due to syphilis	Congenital syphilis	Disastrous result possibly due to syphilis
600,000 units penicillin (10,000 units q. 3 hrs. for 60 doses).	Primary and/or secondary.	9	1	8		8	1	8				1 neonatal death at 10 weeks—cause unknown.
	Latent	0										
1,200,000 units penicillin (40,000 units q. 6 hrs. for 30 doses).	Primary and/or secondary.	30	11	17	2	26	4	26		1 neonatal death at 14 weeks. 1 early abortion		2 late abortions. No information.
	Latent	3	1	2		1	2			1 early abortion	1	1 late abortion. No information.
1,200,000 units penicillin (20,000 units q. 3 hrs. for 60 doses).	Primary and/or secondary.	12	1	8	3	12		10			2	
	Latent	4	1	2	1	4		4				
1,200,000 units penicillin (20,000 units q 3 hrs. for 60 doses) and arsenoxide (0.04 x 8).	Primary and/or secondary.	43	10	29	4	38	5	37	1 (then acquired syphilis).	2 neonatal deaths at 2 and 11 weeks. 1 late abortion 2 stillbirths at 34 weeks and term.		
	Latent	3	1	2		3		3				
2,400,000 units penicillin (40,000 units q. 3 hrs. for 60 doses).	Primary and/or secondary.	6	1	5		4	2	4	1 (then died of burns).	1 neonatal death		
	Latent	2		1	1	2		2				
4,000,000 units penicillin (40,000 units q. 3 hrs. for 100 doses).	Primary and/or secondary.	23	2	16	5	20	3	10	10	1 stillbirth at 34 weeks		1 late abortion. No information. 1 neonatal death (premature). No information.
	Latent	14	1	10	3	13	1	10	4			
Totals	Primary and/or secondary.	123	26	83	14	108	15	95	12	9	2	5
	Latent	26	4	17	5	23	3	19	4	1	1	1
	All diagnoses	149	30	100	19	131	18	114	16	10	3	6
	Percentages	100.0	20.0	67.0	3.0	88.0	12.0	76.5	10.7	6.8	2.0	4.0

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[1] Follow-up less than 16 weeks, but no evidence of syphilis from physical examination, serologic tests, or X-rays of long bones.

mother had latent syphilis treated with 1,200,000 units of penicillin (40,000 units every 6 hours for 30 doses). Treatment had been started in the twenty-sixth week of pregnancy, at which time the mother's quantitative Kahn test was 64. A quantitative STS was not available at the time of delivery. Three months after delivery the mother's quantitative Kahn test was 16, and 6 months after delivery she had an infectious relapse and was re-treated. The baby showed a 4-plus Wassermann reaction at 1 week and at 7 weeks, and at 7 weeks X-rays of the long bones showed syphilitic changes.

In the other 2 cases of congenital syphilis, both mothers had early infectious syphilis and received 1,200,000 units of penicillin (20,000 units every 3 hours for 60 doses). One mother had a complement fixation titer of 82 at the start of treatment, at which time she was in the twenty-fourth week of pregnancy. At delivery the titer was 13. Four months after delivery there was an infectious relapse. One week and 4 weeks after birth the baby's STS was 4 plus, and 4 weeks after birth X-rays of the long bones showed syphilitic changes. The other mother had a complement fixation titer of 64 at the start of treatment in the thirty-second week of pregnancy. At delivery the titer was 21, and 10 months after delivery the STS was negative. The baby's STS was 4 plus at 1 week and 10 weeks, and at 10 weeks the X-rays of the long bones showed syphilitic changes.

One baby called probably nonsyphilitic was clinically normal and had negative STS and negative X-rays of long bones at 7 weeks. When the baby was 9 weeks old the mother relapsed (or was reinfected) with darkfield-positive lesions about the nipples, and was subsequently re-treated. At 17 weeks the baby's STS was 4 plus. This was considered a case of acquired syphilis in the infant, and antisyphilitic treatment was given. No other cases were encountered in which a negative STS in a baby became positive, or a weakly positive STS became more strongly positive.

Group 2: Patients treated prior to pregnancy.—Table 3 shows the results of 86 pregnancies in 84 mothers who had been treated from 1 to 20 months prior to pregnancy. All these patients had been treated for early infectious syphilis. None of them received additional therapy during pregnancy.

The 86 pregnancies resulted in 73 nonsyphilitic babies, 8 probably nonsyphilitic babies, and 4 mishaps that were not attributable to syphilis; or a total of 85 (98.8 percent) with nonsyphilitic end results.

There was one case of congenital syphilis in the group (1.2 percent). The mother had been treated for secondary syphilis with 1,200,000 units of penicillin, at which time her quantitative Kahn test was 128. She became pregnant 2 months later. Nine months after treatment (7 months pregnant), her quantitative Kahn test was 32 and there was no evidence of clinical relapse. She was not seen again until delivery, at which time the quantitative Kahn test was 128, and following delivery she was re-treated as a relapse.

The necessity for frequent posttreatment observation during pregnancy to detect evidence of serologic and clinical relapse is obvious. Clinical examinations and quantitative serologic tests should be done during pregnancy at least at monthly intervals.

With older methods of treatment, therapy was advised in all pregnant women who had syphilis, regardless of the amount of previous treatment or the status of the serologic tests. Most syphilologists believe that this is no longer necessary. But if there is reason to suspect that a patient will not return faithfully for follow-up serologic tests, it is certainly safer to re-treat when the diagnosis of pregnancy is made.

Group 3: Patients who relapsed or were reinfected.—Table 4 shows the results of pregnancy in 26 patients who relapsed or were reinfected following initial antisyphilitic therapy. Six cases were considered definite reinfections, and it is probable that there were others who

TABLE 3.—*Results of treatment. Patients treated prior to pregnancy*

Treatment schedule	Number of patients	Diagnosis					Onset of pregnancy after treatment (months)				Result of pregnancy					
		Sero-negative primary	Sero-positive primary	Primary and secondary	Secondary	Latent	1–3	4–6	6–12	12	Term	Premature	Non-syphilitic baby	Probably non-syphilitic baby	Disastrous result not due to syphilis	Congenital syphilis
600,000 units penicillin (10,000 U. q. 3 hrs. for 60 doses).	[1] 25	5	5	3	12	------	11	4	5	6	25	1	24	1	1 ruptured ectopic------	------
1,200,000 units penicillin (40,000 U. q. 6 hrs. for 30 doses).	[1] 26	------	6	3	17	------	8	[3] 5	14	0	24	3	23	1	1 early abortion------ 1 late abortion------	[5] 1 ------
1,200,000 units penicillin (20,000 U. q. 3 hrs. for 60 doses).	2	------	------	2	------	------	0	1	1	0	2	0	2	------	------	------
1,200,000 units penicillin (20,000 U. q. 3 hrs. for 60 doses) plus arsenoxide (0.04 x 8).	31	------	3	6	22	------	18	3	9	1	[4] 29	2	24	6	1 neonatal death in premature.	------
Total------	[2] 84 (86 pregnancies)	5	14	14	51	0	37	[3] 13	29	7	80	6	73	8	4------	[5] 1

[1] 2 pregnancies in 1 patient.
[2] Includes 16 patients who had received penicillin therapy during a previous pregnancy.
[3] Questionable period of onset in 2 cases.
[4] 1 multiple pregnancy.
[5] Mother had relapsed at time of delivery (quantitative Kahn test 128).

TABLE 4.—*Results of treatment. Patients re-treated after relapse or reinfection*

Original treatment	Number of patients	Original diagnosis			Relapse[1] in relation to pregnancy		Re-treatments			Result of pregnancy			
		Primary	Primary and secondary	Secondary	Before	During	Number	Penicillin	Conjunctive drug	Non-syphilitic baby	Probably non-syphilitic baby	Congenital syphilis	Disastrous result possibly due to syphilis
Arsenoxide plus fever (typhoid).	3	------	------	3	1	2	1	*Units* 1,200,000	------	[2] 1	------	------	------
							2	1,200,000	Arsenoxide	2	------	------	------
600,000 units penicillin	8	1	2	5	1	7	4	1,200,000	------	3	1	------	------
							1	1,200,000 (twice)[3]	------	1	------	------	------
							1	1,200,000	Arsenoxide	1	------	------	------
							2	2,400,000	------	1	1	------	------
1,200,000 units penicillin	10	------	1	9	1	9	1	1,200,000	------	------	------	------	1 Late abortion (24 weeks). No information.
							7	2,400,000	------	[4] 6	------	------	------
							1	4,000,000	------	------	1	------	1 Late abortion (18 weeks). No information.
							1	2,400,000 then [5] 9,000,000	------	1	------	------	------
1,200,000 units penicillin plus arsenoxide (0.04 x 8).	5	1	2	2	------	5	1	[6] 2,280,000	------	------	------	------	1 32-week stillbirth. No information.
							1	2,400,000	------	1	------	------	------
							2	2,400,000	Arsenoxide	2	------	------	------
							1	4,000,000	------	1	------	------	------
Total	26	2	5	19	3	23	26	------	------	20	3	0	3

[1] 6 patients were considered definite reinfections.
[2] 2nd pregnancy resulted in healthy baby.
[3] Relapsed twice during this pregnancy.
[4] 2 patients had second pregnancy resulting in healthy babies.
[5] Relapsed before and during this pregnancy.
[6] Delivered during re-treatment.

itted into this category. However, for he sake of brevity, the term "relapse" vill be used hereinafter. Three of the 6 patients relapsed following arsenoxide nd fever therapy; the remainder after nitial therapy with penicillin.

Three of the 26 relapses occurred prior o pregnancy, and 23 during the course f pregnancy. One of the patients reapsed twice during the same pregnancy; nother patient relapsed prior to, and gain during, the pregnancy.

The original and re-treatment schedules n this small series of patients were aried, but the over-all results of the regnancies were good. Twenty resulted n nonsyphilitic babies and 3 in probably onsyphilitic babies or a total of 23 (88.5 ercent).

There were no cases of congenital philis. Two of the pregnancies ended n late abortions, and one in a 32-week illbirth. No information was available ncerning these mishaps, so that they ere classified as possibly due to syphilis 11.5 percent).

LATIONSHIP OF THE RESULT OF PREGNANCY TO THE TIME OF TREATMENT IN PATIENTS TREATED DURING PREGNANCY

When arsenicals and heavy metals were ed for the treatment of pregnant philitic women, the best results were tained when the mother began treatent before the sixteenth week of pregncy. This does not seem to be true to e same extent when penicillin is used. Table 5, which gives the results of pregnancy in relation to the duration of pregnancy at the onset of treatment, shows that nonsyphilitic babies were obtained even when treatment was given a short time before delivery. In one patient with early infectious syphilis, delivery occurred 2 days after completion of penicillin therapy (1,200,000 units). The baby was nonsyphilitic after follow-up of 1 year. Another patient with early infectious syphilis, not included in this study, was delivered of twins at term during a course of antisyphilitic treatment. She had received only 180,000 units of penicillin prior to the onset of labor. The twins were found to be nonsyphilitic after follow-up of 1 year.

It is true that all but one of the nine disastrous results due or possibly due to syphilis occurred in the patients who were treated after the sixteenth week of pregnancy. But it must be remembered that five of the eight results were late abortions about which no information was available, and the assumption that they were caused by syphilis may be erroneous.

RELATIONSHIP OF THE RESULT OF PREGNANCY TO THE MATERNAL STS AT DELIVERY

Table 6 compares the maternal serologic test at the time of delivery with the outcome of pregnancy. One hundred and twenty-two mothers had negative serologic tests at delivery; 49 showed a quantitative Kahn test of 4 units or less or a Wassermann titer of 10 or less. In this

BLE 5.—*Relationship of result of pregnancy to time of treatment in patients treated during pregnancy*

ration of pregnancy at onset of treatment	Number of patients	Nonsyphilitic baby	Probably nonsyphilitic baby	Disastrous result not due to syphilis	Congenital syphilis	Disastrous result possibly due to syphilis
ectious syphilis:						
Less than 16 weeks	26	20	1	4	0	1
16–32 weeks	83	64	10	4	1	4
32 weeks or more	14	11	1	1	1	0
ent syphilis:						
Less than 16 weeks	4	2	1	1	0	0
16–32 weeks	17	13	2	0	1	1
32 weeks or more	5	4	1	0	0	0
Total	149	114	16	10	3	6

TABLE 6.—*Comparisons of maternal STS at time of delivery with outcome of pregnancy*

Maternal STS at time of delivery	Number of patients	Result of pregnancy				
		Nonsyphilitic baby	Probably nonsyphilitic baby	Disastrous result not due to syphilis	Congenital syphilis	Disastrous result possibly due to syphilis
Patients treated during pregnancy:						
Negative	43	40	1	2	0	
Quantitative Kahn 4 or < Wassermann titer 10 or <	35	28	6	1	0	
Quantitative Kahn 8 or > Wassermann titer 11 or >	56	40	5	6	3	
Unknown	15	6	4	1	0	
Patients treated before pregnancy:						
Negative	73	62	7	4	0	
Quantitative Kahn 4 or < Wassermann titer 10 or <	11	10	1	0	0	
Quantitive Kahn 8 or > Wassermann titer 11 or >	2	1	0	0	[1] 1	
Unknown	0	0	0	0	0	
Relapse-re-treatment group:						
Negative	6	5	1	0	0	
Quantitative Kahn 4 or < Wassermann titer 10 or <	3	2	1	0	0	
Quantitative Kahn 8 or > Wassermann titer 11 or >	16	13	1	0	0	
Unknown	1	0	0	0	0	

[1] Mother relapsed at delivery (quantitative Kahn 128).

group of 171 mothers not a single instance of a syphilitic fetus was observed.

Seventy-four patients showed a quantitative Kahn test of 8 or more units, or a Wassermann titer of 11 or higher. The 4 cases of congenital syphilis occurred in this group. In addition, there were 4 disastrous results considered possibly due to syphilis.

In 16 patients the STS was not known at the time of delivery. Five of these pregnancies ended in disastrous results considered possibly due to syphilis, but in all 5 instances no information was available concerning the presence or absence of a syphilitic infection of the fetus.

BABIES BORN WITH POSITIVE STS

The distribution and outcome of 31 babies with positive STS at birth are shown in table 7. Twenty-eight of these babies were born of mothers who were treated during pregnancy. Three of the 28 had congenital syphilis. Of the remaining 25 babies, 22 attained negative STS at or before the sixteenth week; in 3 babies the time of reversal to negativity was not known because of gaps in th follow-up period.

Three babies with positive STS wer born of mothers who were treated befor pregnancy. One was the baby with con genital syphilis whose mother relapse prior to delivery. Another baby showe a 1-plus Wassermann reaction at 15 week and was subsequently negative. Th other baby showed a 4-plus Wasserman test and negative Kahn test at 8 weeks a 3-plus Wassermann test and negativ Kahn test at 13 weeks; and both test were negative at 16 weeks. There is n explanation for these positive tests, bu it is probable that the serologic tests i the two latter babies represent false posi tive reactions.

No infant who showed a negative ST at birth had a subsequent positive test with the exception of the one case o acquired syphilis.

DISCUSSION

Penicillin has proved a valuable agen in the prevention of congenital syphilis It has fulfilled the requirements set fort

TABLE 7.—*Outcome of babies born with positive STS*

	Number of babies with positive STS at birth	Maternal STS at delivery				Congenital syphilis	Weeks to seronegativity						
		Negative	Quantitative Kahn 4 or < Wassermann titer 10 or <	Quantitative Kahn 8 or > Wassermann titer 10 or >	Unknown		1–4	5–6	7–8	9–10	11–12	15	Time unknown because of gap in observation
ther treated during pregnancy	22	[1] 1	5	15	1	3	----	4	4	4	2	2	3
		----	--------	1	----	1	Mother had relapsed at time of delivery.						
							W[2] 4+ K[3] negative at 8 wks;						
ther treated before pregnancy	3	1	--------	--------	----	----	W 3+ K negative at 13 wks;						
							W K negative at 16 wks;						
		----	1	--------	----	----	W 1+ at 15 wks., then negative.						
apse-re-treatment group	6	0	0	0	6	0	----	1	1	----	1	----	[4] 3

Baby had quantitative Kahn test of 2 units at 1 week, then negative.
Wassermann test.
Kahn test.
Negative at 13, 14, and 16 weeks.

the ideal antisyphilitic agent better n any drug previously employed.

In this series of 261 pregnancies in 259 tients, 95 percent of the results were nsyphilitic, 1.5 percent were definitely philitic, and 3.4 percent were possibly philitic. No previous method of anti- philitic therapy with arsenicals and avy metals yielded such satisfactory ults, with the possible exception of the re recent methods of massive arseno- rapy, which frequently produced seri- s reactions. No severe toxic manifes- ions were observed with any of the nicillin schedules employed in this dy.

When arsenical drugs and heavy metals re used in the treatment of the preg- nt syphilitic woman, the best results re obtained when treatment was rted prior to the sixteenth week of gnancy, before the infection had been nsmitted from mother to fetus. With nicillin therapy, healthy babies have n obtained when treatment was started the last 8 weeks of pregnancy, and in e instances just before delivery.

From this study it is not possible to state what the optimal dosage of penicillin is, but it is safe to say that a total dosage of less than 2,400,000 units of this antibiotic alone is inadequate. Three cases of congenital syphilis occurred in babies whose mothers received a total of 1,200,000 units of penicillin alone. The absence of congenital syphilis in the small group that received a total of 600,000 units is explained by the fact that 47 percent of these patients relapsed and were re-treated with larger dosages. At the present time, the authors are using a dosage of 4,000,000 units of penicillin (40,000 units every 3 hours for 100 doses) for pregnant syphilitic women.

Relapses may occur even when higher dosages of penicillin are used, but the incidence is low and congenital syphilis may be prevented by re-treatment. It is essential that frequent quantitative serologic tests be done during the prenatal period to detect serologic relapses. Any definite rise in the value of the quantitative STS is an indication for re-treatment.

A progressive decline in the value of the quantitative STS following therapy is evidence of a satisfactory response, and further treatment is unnecessary. The decline in quantitative STS in patients treated for latent syphilis is much less precipitate than following therapy for the early infectious stages. The question of what constitutes satisfactory progress after therapy arises in those patients in whom there is no rapid decline in the value of the quantitative tests, or in whom the value remains stationary. In patients who have been treated during pregnancy or who become pregnant following treatment, the authors believe that, with the quantitative Kahn test employed at the Bellevue Hospital Rapid Treatment Center, a value of 16 or higher is an indication for re-treatment, unless there is evidence of a preceding rapid decline to this value. A value of 8 is questionable, but probably does not call for re-treatment. A value of 4 or below is not an indication for further treatment.

It is the opinion of the authors that patients in whom a satisfactory response has been obtained following penicillin therapy prior to pregnancy, as judged by the above criteria, need not be re-treated for syphilis during pregnancy. It is essential, however, that such patients be followed up at least monthly with quantitative STS. If this is impossible, re-treatment during pregnancy is advisable when serologic tests are still positive.

The criteria for a nonsyphilitic baby are the absence of clinical evidence of syphilis, negative serologic tests, and normal X-rays of the long bones after a follow-up period of 16 weeks. Babies born of mothers with positive serologic tests will often show positive tests. Quantitative serologic tests should be done on such babies at weekly intervals. In the absence of congenital syphilis, the values of the tests will show a progressive decline and will become negative by the sixteenth week. There was no instance in this series of a negative test in the baby becoming positive, or of a weakly positive test becoming more strongly positive.

It is probable that some of the healthy babies in this series represent cases of congenital syphilis which were cured i utero by the penicillin given the mothe If this should be so, the possibility of relapse, comparable to the relapse see in the acquired type of syphilis, exis in these babies. No such relapse h been seen, although many of the babi in this report have been followed for year or more.

CONCLUSIONS

1. Penicillin in adequate dosage is effe tive in preventing congenital syphilis. A the present time it is the most satisfa tory agent for the treatment of the pre nant syphilitic woman.

2. A total dosage of less than 2,400,0 units of penicillin alone is not advise At present, Bellevue Hospital is using total dosage of 4,000,000 units (40,0 units every 3 hours for 100 doses).

3. Nonsyphilitic babies may be obtain regardless of the period of gestation which penicillin therapy is started.

4. Frequent observation during t prenatal period is essential to dete evidence of serologic and clinical relaps

5. If a relapse occurs during the pren tal period, a healthy baby may be obtain if re-treatment is instituted promptly.

6. A patient who has responded sati factorily following previous penicill therapy need not be re-treated during a ensuing pregnancy if adequate follow-u observation is assured.

7. Re-treatment is advocated duri pregnancy only in those patients w have not shown satisfactory progress.

REFERENCES

1. Speiser, M. D.; Wexler, G.; Thoma E. W.; Asher, H. A.: The rapid trea ment of early syphilis during pre nancy. Am. J. Obst. & Gynec., 4 214–225, 1945.
2. Herrell, W. E.; Nichols, D. R.; Heilma D. H.: Penicillin: Its usefulness, limit tions, diffusion and detection, wi analysis of 150 cases in which it w employed. J. A. M. A., 125: 1003–101 1944.
3. Greene, H. J.; Hobby, G. L.: Transmissi of penicillin through human placent Proc. Soc. Exper. Biol. & Med., 5 282–283, 1944.

. HUTTER, A. M.; PARKS, J.: The transmission of penicillin through the placenta: A preliminary report. Am. J. Obst. & Gynec., 49: 663–665, 1945.

WOLTZ, J. H. E.; ZINTEL, H. A.: Transmission of penicillin to amniotic fluid and fetal blood in the human. Am. J. Obst. & Gynec., 50:338–340, 1945.

WOLTZ, J. H. E.; WILEY, M. M.: The transmission of penicillin to the previable fetus. Its significance in prenatal syphilis. J. A. M. A., 131: 969–970, 1946.

LEAVITT, H. M.: Clinical action of penicillin on the uterus. J. Ven. Dis. Inform., 26: 150–153, 1945.

LENTZ, J. W.; INGRAHAM, N. R., JR.; BEERMAN, H.; STOKES, J. H.: Penicillin in the prevention and treatment of congenital syphilis. Report on experience with the treatment of fourteen pregnant women with early syphilis and nine infants with congenital syphilis. J. A. M. A., 126: 408–413, 1944.

9. INGRAHAM, N. R., JR.; STOKES, J. H.; BEERMAN, H.; LENTZ, J. W.; WAMMOCK, V. S.: Penicillin treatment of the syphilitic pregnant woman. J. A. M. A., 130: 683–688, 1946.

10. SPEISER, M. D.; THOMAS, E. W.: Regarding the unusual effect of penicillin therapy upon the uterus. J. Ven. Dis. Inform., 27: 20–21, 1946.

11. GOODWIN, M. S.; MOORE, J. E.: Penicillin in prevention of prenatal syphilis. J. A. M. A., 130: 688–694, 1946.

Private Physician Reporting of Syphilis Morbidity

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In order to determine the extent of porting of syphilis morbidity by private ysicians in Kansas, a special study as undertaken by the Kansas State oard of Health.

During the period from June 1 to Oc- ber 15, 1946, every positive test on a ood specimen submitted to the State boratories by a private physician was atched against the Central Registry of ported cases. After allowing 45 days r the submission of a morbidity report, tters were sent to the physicians who d not reported, requesting the submis- on of a report for those cases which ey had diagnosed as syphilitic. Ulti- ately 598 syphilis reports were received om private physicians on the group of ivate patients having a positive blood st during the June 1 to October 15, 1946 riod. Approximately half of these had en routinely submitted by private phy- ians and half had been submitted in sponse to the letters of request. Table shows the findings in detail.

The results of this study suggest that ysicians do not object to reporting, but ther that the purposes and importance reporting have not been brought to eir immediate and full attention. Gen- ally, the purposes of morbidity report- g are:

(*a*) To advise the local health officer of cases diagnosed in his community, so that he may provide private physicians with any services necessary to assure the maximum protection of the public health.

(*b*) To enable the State and local health departments to make estimates of the minimum extent of the problem.

(*c*) To provide a basic index for measuring the success or failure of the control program.

TABLE 1.—*Number of positive serologic tests for syphilis made by the Kansas State Board of Health laboratories*[1] *on specimens submitted by private physicians and later reported as syphilis cases*

Final diagnosis reported by physician	Total cases	Percent	
		Cases reported routinely	Cases reported after special request
Primary or secondary	146	58.9	41.1
Early latent	130	45.4	54.6
Late and late latent	241	40.7	59.3
Congenital	37	54.1	45.9
Stage not specified	44	70.4	29.6
Total	598	49.2	50.8

[1] During the period June 1–Oct. 15, 1946.

Although the health department is obliged to protect the public health from the spread of communicable diseases, the health officer cannot know of the presence of disease except as it is reported to him by the physicians. The health department laboratory is not a source of information concerning the incidence and prevalence of syphilis, since the diagnosis of syphilis is not made solely upon the basis of a positive blood test. Therefore, if physicians do not report cases they have diagnosed as syphilis, the health officer cannot fulfill his legal obligation to make sure that infectious persons and their contacts are brought under the management of a physician.

The health department must depend largely upon the physicians for the completeness of morbidity reporting, since the physicians come in closer touch with the individuals of the community and are therefore in a better position to know when disease occurs. In fact, the health of the community lies largely in the hands of the practicing physicians of the community, and each physician serves as a virtual health officer for those whom he attends. Every physician has a number of individuals or families who look to him not only for treatment, but also for such reasonable protection from disease as he is able to give. His failure to report a case of syphilis in one patient may lead to its spread to others he attends. When the physician reports, he is furthering the intent and spirit of the ethical principle of the protection of the health of all his patients.

CURRENT LITERATURE

NOTE: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the past 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

ACTA. DERMAT.-VENEREOL., STOCKHOLM

La dermatite salvarsanique est-elle devenue plus fréquente? (Has postarsenical dermatitis become more frequent?) A. Madsen. [Communication at the Norwegian Dermatological Society's meeting of Sept. 9, 1943.] 27 : 162–164, 1946.

Sulfathiazol-pyréthérapie combinés de la blenorragie sulfonamo-résistante. (Combined sulfathiazole and fever therapy in sulfa resident gonorrhea.) A. Madsen. 27 : 165, 1946.

AM. J. PUB. HEALTH, NEW YORK

Universal serologic reactivity with lipid antigens. Basis for "false positives." Reuben L. Kahn. 37 : 283–292, Mar. 1947.

ANN. ET BULL. DE DERMAT., PARIS

Erythrodermie oedémato-vésiculeuse tardive après traitement par le Fontarsol. Action de la Sulfamidothérapie. (Delayed edematous vesicular erythrodermia following treatment with fontarsol. Effect of sulfatherapy.) P. Fernet and Y. Guibert. 6 : 463–464, Sept. 1946.

Le traitement des aorto-myocardites syphilitiques par des cures de 200 injections successives de cyanure de mercure. (Treatment of syphilitic aortitis and myocarditis with courses of 200 injections of mercury cyanide.) M. R. Degos. 6 : 464, Sept. 1946.

Pénicilline et traitement de consolidation de la syphilis. (Penicillin and follow-up treatment of syphilis.) A. Tzanck and R. Moline. 6 : 469–470, Sept. 1946.

La prostitution masculine. (Male prostitution.) A. Touraine. 6 : 471–472, Sept. 1946.

Lutte antivénérienne et enquêtes epidémiologiques. 1^{re} NOTE: Enquêtes a Paris. (Venereal disease control and epidemiologic investigations, 1st report: Investigations in Paris.) Touraine et Miss Cavalier. 6 : 495–496, Sept. 1946.

Un cas d'agranulocytose mortelle au cours d'un traitement bismuthique. (A case of fatal agranulocytosis following bismuth treatment.) Coste and Anquier. 6 : 496, Sept. 1946.

*L'enquête épidemiologique en Province. (The epidemiologic investigation in provincial districts.) A. Touraine. 6 : 523–524, Sept. 1946.

**L'enquête épidemiologique en Prov-
ice. (The epidemiologic investigation
i provincial districts.)** A. Touraine.
n. et bull. de dermat., Paris, 6: 523–
4, 1946.

The tracing of contacts is almost the
ly weapon left in the fight against the
s eading of venereal diseases. In a pre-
ous paper, the author reported how in-
ective was this weapon in Paris in spite
the fact that epidemiologic investiga-
ns were relatively facile in that city.
this paper, the results of epidemiologic
estigations in four provincial districts
e surveyed.

Practitioners' reports, on which inves-
ations should be mainly based, were
ed only in a small number. In the four
icultural districts with a total popula-
n of 1,138,000, 1,186 cases of venereal
ease (881 cases of gonorrhea, 297 cases
early syphilis, and 8 cases of chan-
id) were reported in 1 year. Tri-
strial reports from 1945 to 1946 showed
onstant decrease of gonorrhea (308,
, 203, 110 cases) and little change in
ly syphilis (57, 85, 77, 78); thus, con-
ry to the general trend, all venereal
eases combined showed a considerable
rease (369, 342, 285, 190).

owever, in the author's opinion, these
res did not give the actual facts, but
e rather due to incomplete reporting
physicians. Of 640 physicians prac-
ng in these districts, there were only
(3.6 percent) civilian practitioners, 7
whom were in charge of venereal dis-
e control, and 13 military doctors
g reports.

he results of epidemiologic investiga-
s vary greatly according to the ac-
ty of health authorities. In each
inistrative district, two types of epidemiologic investigations are distinguished: the "outgoing," which trace contacts of patients of this district in the same or in other districts, and the "incoming," which trace contacts of patients of other districts. Statistics are given on both outgoing and incoming investigations in one district.

The epidemiologic investigation is still more problematical in the provincial districts than in Paris. Administrative machinery complicates and delays the investigation when it has to be undertaken in a city other than that in which the infection took place.

ANN. INST. PASTEUR, PARIS

Sur les réactions sériques consécutives à l'administration de penicilline. (Seroreactions following the administration of penicillin.) J. Loiseleur, M. Levy and B. Sureau. 72 : 931–940, Nov.–Dec. 1946.

ANN. TROP. MED., LIVERPOOL

A modification of the Ide test for syphilis and yaws. E. C. Smith, B. G. T. Elmes and J. A. Smith. 39 : 94–97, Oct. 10, 1945.

ARCH. DERMAT. & SYPH., CHICAGO

Keratosis blennorrhagica. Clinical notes. Gerald A. Spencer. 54 : 455–456, Oct. 1946.

Dermatitis medicamentosa. (Fixed eruption due to arsenic.) Abraham Walzer. (New York Academy of Medicine, Section on Dermatology and Syphilology, Feb. 6, 1946.) Society Transactions. 54 : 478–479, Oct. 1946.

Dermatitis medicamentosa (iodide). Eugene F. Kelley. (New York Academy of Medicine, Section on Dermatology and Syphilology, Mar. 6, 1945.) Society Transactions. 54 : 481, Oct. 1946.

Calcification of gluteal regions following injections of heavy metals (mercury). F. Philip Lowenfish. (New York Academy of Medicine, Section on Dermatology and Syphilology, Mar. 6, 1945.) Society Transactions. 54 : 487–488, Oct. 1946.

Observations on the cause and transmission of granuloma inguinale. Donald C. A. Butts and Sidney Olansky. 54 : 524–530, Nov. 1946.

Progressive syphilitic optic atrophy benefited by combined penicillin and fever therapy. Report of a case. Clinical Notes. Joseph L. Fetterman. 54 : 566–568, Nov. 1946.

Keratosis blennorrhagica. S. E. Sweitzer. (Minnesota Dermatological Society, Feb. 9, 1945.) Society Transactions. 54 : 583, Nov. 1946.

Chancroid? S. E. Sweitzer. (Minnesota Dermatological Society, Feb. 9, 1945.) Society Transactions. 54: 587–588, Nov. 1946.

A case for diagnosis (psoriasis of the palms and soles; syphilis?) John G. Downing. (New England Dermatological Society, Feb. 14, 1945.) Society Transactions. 54: 609–610, Nov. 1946.

Granuloma inguinale. Michael Ebert and M. S. Kagen. (Chicago Dermatological Society, Feb. 21, 1945.) Society Transactions. 54: 627–628, Nov. 1946.

"Fixed" eruption of the mucous membrane and the skin caused by sulfadiazine. Lionel M. Cole. 54: 675–676, Dec. 1946.

Granuloma inguinale. David M. Davidson and Nathan Pensky. (Brooklyn Dermatological Society, Feb. 26, 1945.) Society Transactions. 54: 722–723, Dec. 1946.

Epidermodysplasia verruciformis (Lewandowsky-Lutz); keratosis palmaris et plantaris; latent syphilis. Frank Vero. (New York Academy of Medicine, Section of Dermatology and Syphilis, April 3, 1945.) Society Transactions. 54: 757–758, Dec. 1946.

Delayed reversal of the serologic reaction of the blood in a patient with early syphilis treated by the Eagle and the Hogan method. Girsch D. Astrachan. (Manhattan Dermatologic Society, April 10, 1945.) Society Transactions. 54: 771, Dec. 1946.

ARCH. OPHTH., CHICAGO

Keratitis associated with lymphogranuloma venereum. Harold G. Scheie and Alan S. Crandall. (College of Physicians of Philadelphia, Section on Ophthalmology, Apr. 18, 1946.) Society Transactions. 36: 633–637, Nov. 1946.

ARCH. PHYS. MED., CHICAGO.

Physicopyrexia and the biologic healing of early and late syphilis of the rabbit. A. Bessemans and A. Denoo. 27: 547–559, Sept. 1946.

Effect of elevated body temperature on the plasma ascorbic acid. Robert M. Craig, George X. Schwemlein, H. Worley Kendell, Chester J. Farmer and Hans C. S. Aron. 27: 603–607, Oct. 1946.

ARCH. SURG., CHICAGO

*Lymphogranulomatous strictures of the rectum. A résumé of four hundred and seventy-six cases. Louis T. Wright, W. Adrian Freeman and Joel V. Bolden. 53: 499–544, Nov. 1946.

Lymphogranulomatous strictures of the rectum. A résumé of four hundred and seventy-six cases. Louis T. Wright, W. Adrian Freeman and Joel V. Bolden. Arch. Surg., 53: 499–544, 1946.

The authors present a study of 476 patients admitted to Harlem Hospital from January 1930 to August 1945 with lymphogranulomatous stricture of the rectum.

It is claimed that lymphostasis is important in the pathogenesis of rectal strictures in three ways: (1) blockage of lymph glands and interference with drainage; (2) involvement of lymph channels due to action of lymphogranuloma venereum virus; and (3) scar tissue-producing action of virus. It is thought that some strains of the virus may be extremely pathogenic and others benign, which would account for the variations in symptoms in different individuals, ranging from mildness to death.

The stricture is usually cylindric i shape and located about 2 to 4 cm. abov the anus. There may be ulceration on th stricture, with the rectal wall rigid if th stricture is advanced; almost complet occlusion of the rectal wall may also exist. It is recommended that the Fre test be done on all suspected stricture and when positive it is a most importan confirmatory diagnostic aid. If negativ it is important to repeat the test wit potent antigen and careful technic. Th cultivation of the virus from rectal m cosa obtained from the site of strictu makes the diagnosis absolute. Biops should be used to exclude carcinoma, a though this disease may be superim posed on lymphogranuloma venereum Barium enemas may also be used to dem onstrate the presence of stricture.

Treatment is fully discussed by tl authors, with the following observation

1. Drugs. Fuadin was found to be u successful; the sulfonamides were hel ful but not viricidal; penicillin was us without success. Phthalylsulfathiazole now being used at Harlem Hospital.

2. Biologic methods. Antigens, est gens, and irradiation have been used u successfully.

3. Surgical methods. Dilation is use only in early and mild cases; there always danger of tearing the tissu Proctotomy merely produces more sc tissue. Permanent colostomy is said

the most satisfactory method in the eatment of lymphogranulomatous stric- re of the rectum.

Other operative procedures are dis- issed and evaluated, and numerous case stories are presented.

rkansas Health Bull., Little Rock

Lab rates high on tests. (STS) 3: 1, Aug. 1946.

etter Times., New York City

VA spokesman asks aid in coping with vet VD problems. 28: 1, Jan. 3, 1947.

oll. Soc. Ital. Biol. Sper., Napoli

Il comportamento dell'anticorpo antitreponemico e antilipoideo durante il trattamento dell sifilide recente. (The behavior of the antitreponemal and the antilipoidal antibodies during the treatment of early syphilis.) Vittorio Puccinelli. 22: 172, Mar. 1946.

Contributo allo studio del mecanismo d'azione dell'arsenobenzolo. (Contribution to the study of the mechanism of the action of arsphenamine. V. A. Puccinelli and M. L. De Luca. 22: 173, Mar. 1946.

rit. J. Ven. Dis., London

Treatment of neurosyphilis. A comparison between malaria plus tryparsamide and malaria therapy. W. D. Nicol. 22: 112–121, Sept. 1946.

Penicillin in the treatment of lymphogranuloma inguinale. N. V. Rao. 22: 135, Sept. 1946.

A case of congenital syphilis treated with penicillin. N. V. Rao. 22: 135–136, Sept. 1946.

Venereal diseases in the armed forces overseas (1). Robert Lees. 22: 149–158, Dec. 1946.

Venereal diseases in the armed forces overseas (2). Douglas J. Campbell. 22: 158–168, Dec. 1946.

Balanitis xerotica obliterans associated with chronic gonorrhoea. G. W. Csonka. Clinical Records. 22: 182–184, Dec. 1946.

rit. M. J., London

Treatment of ophthalmia neonatorum. Letters, Notes, and Answers. No. 4477: 637–638, Oct. 26, 1946.

Some American ideas on venereal disease control. R. R. Willcox. No. 4482: 825–827, Nov. 30, 1946.

ooklyn Hospital J., New York

The prevention of cardiovascular syphilis. Edwin P. Maynard and Claire Lingg. 4: 18–25, July 1946.

Bruxelles-Med., Bruxelles

Les porteurs des germes syphilitiques. (Syphilis carriers.) A. Bessemans and J. Vercoullie. 26: 1133–1138, Sept. 29, 1946.

Bull. Sanitaire, Montreal

The Division of Laboratories of the Ministry of Health. 47: 2–19, Jan.-Feb. 1947.

Bull. U. S. Army M. Dept., Washington

Treatment of penile condylomata with podophyllin. 6: 546, Nov. 1946.

*Penicillin in neurosyphilis. 6: 696–699, Dec. 1946.

Effect of battle casualties on serodiagnostic tests for syphilis. Walter R. Talmage, Charles W. Dunn and Edward L. Breazeale. 6: 741–744, Dec. 1946.

Penicillin in neurosyphilis. Bull. U. S. Army M. Dept., 6: 696–699, 1946.

In a discussion of the use of penicillin in neurosyphilis, it is claimed that this drug is superior to any form of metal chemotherapy and is as satisfactory as fever therapy plus metal chemotherapy in many of the less serious types of neurosyphilis.

Penicillin combined with fever therapy seems superior to penicillin alone in parenchymatous neurosyphilis, although the latter method requires only 21 days. A comparable result from metal chemotherapy requires months or years of almost continuous treatment, while fever therapy alone or combined with penicillin requires 5 to 8 weeks' hospitalization. Penicillin is therefore safer, less time consuming, and equally efficacious as compared with other methods of treatment.

Penicillin alone, in a total dosage of 9,000,000 units given over a period of 22 days, is recommended as an initial course of treatment for patients with asymptomatic (early or late) neurosyphilis, acute syphilitic meningitis, diffuse meningovascular neurosyphilis, gumma of the brain or cord, and vascular neurosyphilis. A recheck of the neuropsychiatric and laboratory (blood and spinal fluid) examinations should be carried out every 3 months during the first posttreatment year, every 6 months during the second year, and yearly thereafter for an indefinite period of time.

Penicillin plus fever therapy is recommended for general paresis, taboparesis, primary optic atrophy, nerve deafness, syphilitic epilepsy, and Erb's spinal spastic paraplegia. A total dosage of 9,000,000 units is given, arranging the schedule so that the total duration of penicillin therapy will roughly coincide with the period of fever therapy, i. e., 12 to 20 days. Penicillin therapy may be deferred until the first induced elevation of temperature.

Malaria is the fever of choice, Plasmodium vivax for white patients and P. malariae for Negroes and for white persons immune to P. vivax. Eight to twelve paroxysms (40 to 60 hours of fever over 104° F.) are permitted. No further treatment with arsenic, bismuth, or penicillin is given, but if after 6 months no clinical satisfaction is obtained, re-treatment with malaria-penicillin or with penicillin alone may be tried. Posttreatment observation should be carried out as suggested above.

CALIFORNIA MED., SAN FRANCISCO

Delayed reactions following penicillin therapy. Preliminary report. Allen T. Hinman, George F. Warner and Jonah G. Li. 65 : 112–114, Sept. 1946.

The responsibility of the physician in premarital examinations. 65 : 117–118, Sept. 1946.

Diagnostic problems in luetic cardiovascular disease. S. P. Lucia and W. N. Sears. 65 : 207–212, Nov. 1946.

CANADA'S HEALTH & WELFARE, OTTAWA

Prairie pow-wow makes modern medicine. (Control of syphilis.) 2 : 2–3, Feb. 1947.

CENTRAL AMERICAN CONGRESS OF VENEREOLOGY, PANAMA

Primer congreso centro-americano de venereologia. Panama, 22–25 de Abril de 1946. (The first Central American Congress of Venereology, Panama, April 22–25, 1946.)

CINCINNATI J. MED., CINCINNATI

Congenital syphilis. Ruth Wittkamper, Catherine Ludlow and Philip Vandeman. 28 : 92–97, Feb. 1947.

CLIN. MED., WAUKEGAN

Ophthalmia neonatorum. (Penicillin treatment.) 54 : 29, Jan. 1947.

COMPT. REND. SOC. DE BIOL., PARIS

Comparaison de la persistance de la mobilité au sein d'émulsions mères diluées ou non, des tréponèmes pales de syphilomes testiculaires de lapin et de ganglions lymphatiques de hamsters syphilisés. (Comparison of the persistence of motility of treponemes in diluted and undiluted emulsions from syphilitic scrotal lesions of rabbits and from lymph nodes of syphilitic hamsters.) A. Bessemans, A. De Moor and H. Baert. 140 : 707–709, Sept. 1946.

EPIDEMIOL. INFORM. BULL., WASHINGTON

Ethiopia. (V. D.) Epidemiological Notes. 2 : 928, Nov. 30, 1946.

FLORIDA HEALTH NOTES, JACKSONVILLE

Venereal disease control in Florida. R. F. Sondag. 39 : 35–47, Feb. 1947.

HOSP. CORPS QUART., WASHINGTON

Venereal disease education. M. R. Waters. 20 : 9–11, Jan.–Feb.–Mar., 1947.

HOSPITALS, CHICAGO

Syphilis control program includes bed rental plan. 20 : 87–88, July 1946.

J. A. M. A., CHICAGO

Today's treatment of syphilis. Paul A. O'Leary and Robert R. Kierland. 132 430–434, Oct. 26, 1946.

*Treatment of early syphilis with penicillin. Thomas H. Sternberg and Willian Leifer. 133 : 1–5, Jan. 4, 1947.

*Penicillin in the treatment of neurosyphilis. A study of one hundred cases followed twelve months or more. Augustu S. Rose and Harry C. Solomon. 133 5–10, Jan. 4, 1947.

*Early congenital syphilis. Treatment o two hundred and fifty-two patients wit penicillin. R. V. Platou, Allan J. Hil Norman R. Ingraham, Mary S. Goodwin Earle E. Wilkinson, Arild E. Hansen an Albert Heyman. 133 : 10–16, Jan. 4 1947.

Treatment of early syphilis with penicillin. Thomas H. Sternberg and Williar Leifer. J. A. M. A., 133: 1–5, 1947.

The authors report on an analysis o the Army records of 1,400 men with earl syphilis treated by means of a schedul calling for 40,000 units of sodium pen cillin in aqueous solution or isotonic s lution of sodium chloride, administere intramuscularly every 3 hours to a tot of 2,400,000 units in 7½ days.

Among these patients, who were treate between June 1944 and Feb. 1, 1945, the were 600 (42.8 percent) patients wit seronegative primary syphilis, 564 (40 percent) with seropositive primary syp ilis, and 236 (16.9 percent) with secon

y syphilis. All were between 18 and
years of age, 790 (56.4 percent) being
hite and 610 (46.6 percent) being Negro.
pproximately 84 percent of the patients
ere observed for longer than 9 months.
Treponema pallidum was demonstrated
the lesions of all cases of seronegative
rimary syphilis, in 77 percent of those
ith seropositive primarily syphilis, and
41 precent of those in the secondary
age. The standard and quantitative
ahn tests were used for diagnostic and
llow-up purposes, and all patients were
ospitalized for the period of treatment
least.

In seronegative primary syphilis, 566
atients (94.3 percent) were seen to be
rogressing satisfactorily at the last ob-
ervation. Thirty-four patients, how-
ver, were considered failures because of
fectious relapse in 27 and serologic re-
pse in 7. At the time of the last ob-
ervation of the seropositive primary
roup 507 (89.9 percent) were progress-
g satisfactorily, while 57 (10.1 percent)
ere found to be making unsatisfactory
rogress. Of these, 20 had an infectious
elapse, 14 had relapsed serologically,
erum fastness was seen in 22, and abnor-
al spinal fluid was found in 2. One pa-
ent was counted as a failure twice be-
ause of concomitant infectious relapse
nd abnormal cerebrospinal fluid. In sec-
ndary syphilis, 196 (83.0 percent) were
rogressing satisfactorily and 40 (17.0
ercent) unsatisfactorily at the time of
e last observation. Of the latter, 4 had
uffered infectious relapse, 6 had relapsed
erologically, 27 were serum fast, and 3
xhibited abnormal spinal fluids.

In summary, of the 1,400 patients in
is study, 1,269 (90.6 percent) were
rogressing satisfactorily and 131 (9.4
ercent) unsatisfactorily at the time they
ere last observed. This high over-all
atisfactory progress rate, admittedly
entative because of inadequate follow-
p, is attributed to the considerable pro-
ortion (83.1 percent) of cases in the
rimary stage and the fact that the peni-
llin used was of adequate potency.

Penicillin in the treatment of neurosyphilis. A study of one hundred cases followed twelve months or more. Augustus S. Rose and Harry C. Solomon. J. A. M. A., 133: 5–10, 1947.

The authors report on 210 patients with neurosyphilis now under observation at the Boston Psychopathic Hospital, with special reference to 100 of these patients who have been followed for 1 year or more after treatment. Included in this latter group were 75 patients with dementia paralytica, 10 with tabes dorsalis, 10 with meningovascular disease, and 5 with optic atrophy.

In the majority of cases, malaria and fever cabinet therapy in amounts equivalent to approximately one-half the generally accepted course of fever was used, that is, 4 to 6 paroxysms of malarial fever with temperatures above 104° F. or a total of 20 hours of temperature above 105° F. in the fever cabinet. Penicillin was given concurrently or in succession with the fever therapy. Penicillin without fever was given in a few instances, and in case re-treatment was needed, penicillin was repeated in the same amount and frequency as first used; fever therapy was never repeated, however. A total course of 3,000,000 units of penicillin, administered intramuscularly, was given to all patients.

Clinical results in the 100 patients followed for 1 year or more showed 62 improved, 35 with no change, and 3 worse. Thirty-eight were re-treated with penicillin. Of the 60 patients treated with penicillin combined with malaria, 40 were improved, and 20 showed no change requiring re-treatment. Those treated with penicillin alone or with penicillin combined with fever cabinet therapy showed a somewhat smaller percentage of improved conditions.

Following treatment, the cell count and total protein contents of the spinal fluid returned toward normal in from 3 to 6 months and 6 to 9 months, respectively; the Wassermann titer decreased more slowly. Of the 100 patients followed for 1 year or more, 11 now have a negative spinal fluid Wasserman reaction. However, the necessity for re-treatment in more than one-third of the cases followed for at least a year indicates that 3,000,000 units of penicillin combined with a short course of fever therapy is not the optimum treatment for late symptomatic neurosyphilis.

Early congenital syphilis. Treatment of two hundred and fifty-two patients with penicillin. R. V. Platou, Allan J. Hill, Norman R. Ingraham, Mary S. Goodwin, Earle E. Wilkinson, Arild E. Hansen and Albert Heyman. J. A. M. A., 133: 10–16, 1947.

The authors discuss an attempt to evaluate the effects of sodium penicillin in the treatment of early congenital syphilis in 252 infants seen in five cooperating university clinics. This series of children, who were treated in the period between April 1944 and January 1946, consisted of 219 Negro and 33 white infants, 118 boys and 134 girls. Their ages ranged from less than 3 months to 2 years.

The infants in this study received total dosages of sodium penicillin varying from 770 to 150,000 units per kilogram of body weight. For schedules of 40,000 units or less, the drug was usually administered in aqueous solution in 60 equal intramuscular doses every 3 hours for 7½ days. Larger total dosages were divided over a period of 15 days.

Spinal fluids were examined prior to the initiation of treatment in 171 infants; in only 65 was the fluid found to be normal, however. Type I fluid was noted in 39 infants, type II was seen in 49, and type III, or the paretic formula, was encountered in 18. Among the 106 children who had cerebrospinal fluid changes attributable to syphilis, there were only 6 who exhibited clinically recognizable neurologic disorder.

Results of treatment were poorer in the white children than the Negro, althrough the results appeared to be about the same in boys as in girls. For all dosage schedules combined, the outcome was satisfactory in about 74 percent of the cases, unsatisfactory in about 9 percent, and uncertain in approximately 18 percent. Deaths during or after treatment could not be correlated with th
dosages of penicillin used.

The authors, in conclusion, recommen
the following therapy for young syphiliti
infants: A total dosage of at least 100,00
units of penicillin per kilogram of bod
weight, divided into approximately 12
equal intramuscular injections given a
intervals of 3 hours over a period of 1
to 15 days.

J. Am. Pharm. A. (Scient. Ed.), Wase
ington

The chemical assay of penicillin. Merli
Mundell, Henry Fischbach and Thomas I
Eble. 35: 373–378, Dec. 1946.

The stability of commercial crystallir
sodium penicillin in solution. Samu
Molinas and Henry Welch. 36: 41–4
Feb. 1947.

J. Indian M. A., Calcutta

Penicillin in chancroid. K. D. Lahiri. 1
406–407, Sept. 1946.

Penicillin in venereal arthritis. N. C. D
Gupta. 15: 415, Sept. 1946.

J. Iowa M. Soc., Des Moines

Rapid treatment of syphilis. 37: 130–13
Mar. 1947.

Iowa Committee for the Study of Venere
Diseases. 37: 133, Mar. 1947.

J. Kansas M. Soc., Topeka

Syphilis: General considerations and
method of treatment. Charles C. Denn
and Frank X. Dwyer. 48: 1–12, Ja
1947.

Syphilis costs increase. The Kansas Pre
looks at medicine. 48: 86, Feb. 1947.

J. M. A. Alabama, Montgomery

The use of quantitative serologic tests
the diagnosis and treatment of syphil
Howard L. Holley. 16: 259–261, F
1947.

Practical considerations in the treatment
early syphilis. Ray O. Noojin. 16: 26
266, Feb. 1947.

J. M. A. Georgia, Atlanta

Rapid treatment of syphilis. C. D. Bo
doin. 36: 47–48, Jan. 1947.

Tropical dermatoses among naval person
in the South Pacific Area. (Includi
v. d.) Herbert S. Alden and Jack W. Jon
36: 75–79, Feb. 1947.

J. Michigan M. Soc., St. Paul

The clinical significance of hoarseness a
wheezing respiration. (Syphilis of l
ynx.) Louis H. Clerf. 46: 87–89, Ja
1947.

Change in rapid treatment center poli
46: 118, Jan. 1947.

NAT. M. A., NEW YORK

Masking syphilis in treatment of gonococcic infections with penicillin. Editorial. 39 : 35–36, Jan. 1947.

RTHWEST MED., SEATTLE

State Board of Health proposes legislation. (Oregon premarital law.) 46 : 53–54, Jan. 1947.

Territorial Department of Health evaluation of diagnostic tests for syphilis. 46 : 60, Jan. 1947.

Use of hormones in gynecologic and obstetric practice. (Including gonorrheal vaginitis.) E. Stewart Taylor. 46 : 128–134, Feb. 1947.

HIO STATE M. J., COLUMBUS

Responsibility in venereal disease control. Roger E. Heering. 43 : 154–158, Feb. 1947.

Keeping up with medicine. (False positive STS.) 43 : 158, Feb. 1947.

EGON HEALTH BULL., PORTLAND

Syphilis incidence low in Oregon. 24 : 1, Dec. 4, 1946.

24 laboratories fail in tests. 24 : 1, 3, Dec. 11, 1946.

ORIA HEALTH NEWS, PEORIA

Venereal disease control in Peoria—1946. 1 : 2–3, Jan.–Feb. 1947.

ST-GRAD. M. J., LONDON

Simplified penicillin treatment of lymphogranuloma inguinale and other venereal diseases in West African troops. R. R. Willcox. 22 : 97, 1946.

ESSE MÉD., PARIS

Sérologie syphilitique des Sénégalais. (Syphilitic seroreactions in Senegalese.) Julliard. 54 : 524–525, Aug. 10, 1946.

Traitement de la syphilis par une association liposoluble de bismuth et d'ester méthylique de pénicilline. (Treatment of syphilis with a fat-soluble combination of bismuth and of penicillin methyl ester.) C. Levaditi and A. Vaisman. 54 : 781–782, Nov. 23, 1946.

UB. HEALTH, LONDON

The medical officer—prospect and introspect. E. D. Irvine. 60 : 93–95, Feb. 1947.

UB. HEALTH NEWS, TRENTON

Services anonymous—your State public health laboratory. John H. Spooner, Jr. 28 : 182–183, Dec. 1946.

UB. HEALTH NURSING, NEW YORK

National and international horizons in health. (Including syphilis.) Thomas Parran. 38 : 583–587, Nov. 1946.

PUB. HEALTH REP., WASHINGTON

Training public health workers. Programs sponsored by State health departments under title VI of the Federal Social Security Act and the Federal Venereal Disease Control Act (1936–44). Joseph W. Mountin and Emily K. Hankla. 61 : 725–759, May 24, 1946.

Public Health Service publications. A list of publications issued during the period January–June 1946. 62 : 131–136, Jan. 24, 1947.

REV. BELGE SC. MÉD., LOUVAIN

La prophylaxie de la syphilisation par transfusion sanguine. (Prevention of syphilis infection by blood transfusion.) A. Bessemans and R. Derom. 16 : 177–183, Sept. 1946.

SCIENCE, LANCASTER

Effect of rubber tubing upon the stability of penicillin and streptomycin solutions. J. B. Huelsebusch, M. J., Foter and I. W. Gibby. 104 : 479–480, Nov. 22, 1946.

Stability of penicillin in glycerin and in glycols. R. J. Ferlauto and H. A. Clymer. 105 : 130–131, Jan. 31, 1947.

SOUTH AFRICAN M. J., CAPE TOWN

Gonorrhoea in a European male child aged 8. I. Hendler. 20 : 779, Dec. 28, 1946.

SOUTH. M. J., BIRMINGHAM

Simple laboratory aids for the control of streptomycin therapy in general practice. Jerry K. Aikawa, Charles M. Gillikin, E. Garland Herndon and George T. Harrell. 40 : 141–153, Feb. 1947.

The present status of endocervicitis. Cayetano Panettiere. 40 : 183–186, Feb. 1947.

Syphilis of the cervix. William F. Guerriero, W. B. Mantooth and W. Moore. 40 : 261–264, Mar. 1947.

SOUTH. MED. & SURG., CHARLOTTE

Stricture of the rectum. Russell Buxton. 109 : 6, Jan. 1947.

TEXAS STATE J. MED., FORT WORTH

Cancer of the larynx, its diagnosis and treatment. (Differentiation from syphilis of larynx.) Claude C. Cody, Jr. 42 : 495–498, Dec. 1946.

Is mass serology worth while? (Syphilis). John F. Pilcher. 42 : 540–542, Jan. 1947.

Penicillin therapy in congenital syphilis. Dorothy B. Wyvell. 42 : 578–583, Feb. 1947.

TR. ROY. SOC. TROP. MED. & HYG., LONDON

The clinical course of yaws in Lango, Uganda. C. J. Hackett. 40 : 206–227, Dec. 1946.

Diagnosed Cases of Syphilis and Gonorrhea Reported for the First Time in th United States and Territories, by Quarters

Period	Syphilis					Gonorrhea
	Total [1]	Primary or secondary	Early latent	Congenital	Late or late latent	
	All sources					
July-September 1942	145, 277	21, 035	35, 955	4, 824	65, 852	69, 70
October-December 1942	152, 000	21, 218	37, 436	4, 349	69, 323	70, 68
January-March 1943	140, 633	21, 440	39, 130	4, 229	61, 366	68, 20
April-June 1943	138, 187	20, 936	38, 182	4, 540	60, 367	72, 32
July-September 1943	129, 554	20, 697	34, 744	4, 368	55, 902	80, 36
October-December 1943	113, 258	19, 354	29, 260	3, 450	49, 584	75, 29
January-March 1944	117, 383	20, 144	31, 080	3, 875	53, 684	74, 26
April-June 1944	112, 530	20, 121	30, 295	4, 014	49, 660	77, 57
July-September 1944	94, 873	19, 963	25, 826	3, 795	38, 660	80, 81
October-December 1944	85, 105	18, 037	23, 590	3, 361	34, 800	62, 1
January-March 1945	90, 554	20, 251	26, 084	3, 543	35, 306	71, 4
April-June 1945	97, 617	20, 398	29, 430	4, 031	37, 709	79, 2
July-September 1945	87, 664	19, 685	26, 953	3, 453	32, 485	83, 6
October-December 1945	83, 376	21, 187	25, 073	3, 187	29, 518	84, 2
January-March 1946	99, 151	27, 031	29, 635	3, 683	33, 552	100, 1
April-June 1946	100, 711	28, 319	28, 991	3, 858	33, 525	104, 5
July-September 1946	99, 824	29, 190	28, 014	3, 473	32, 140	112, 3
October-December 1946 [2]						
	Private physicians					
July-September 1942	53, 412	10, 148	9, 936	1, 399	21, 533	24, 1
October-December 1942	55, 647	10, 173	9, 622	1, 303	22, 207	23, 4
January-March 1943	49, 356	9, 937	9, 022	1, 254	20, 436	20, 2
April-June 1943	47, 897	9, 446	9, 525	1, 202	20, 471	19, 3
July-September 1943	44, 304	9, 038	8, 946	1, 130	18, 844	21, 7
October-December 1943	40, 709	8, 779	8, 335	988	17, 235	20, 2
January-March 1944	40, 903	8, 624	8, 983	954	17, 745	18, 4
April-June 1944	40, 712	8, 447	9, 205	1, 079	17, 638	20, 1
July-September 1944	34, 990	8, 065	7, 729	963	14, 854	21, 8
October-December 1944	34, 317	7, 931	7, 514	925	14, 904	20, 0
January-March 1945	35, 234	8, 383	8, 038	953	14, 689	19, 5
April-June 1945	35, 505	7, 942	7, 757	869	15, 389	20, 1
July-September 1945	31, 029	6, 919	6, 905	756	13, 474	22, 0
October-December 1945	29, 093	7, 245	6, 547	725	12, 040	23, 4
January-March 1946	34, 113	8, 883	7, 930	886	13, 720	25, 9
April-June 1946	36, 444	9, 368	8, 379	950	14, 577	25, 3
July-September 1946	37, 342	9, 243	8, 319	877	14, 293	27, 5
October-December 1946 [2]						
	Clinics, hospitals, and other institutions					
July-September 1942	91, 865	10, 887	26, 019	3, 425	44, 319	45, 5
October-December 1942	96, 353	11, 045	27, 814	3, 046	47, 116	47, 2
January-March 1943	91, 277	11, 503	30, 108	2, 975	40, 930	48, 0
April-June 1943	90, 290	11, 490	28, 657	3, 338	39, 896	53, 0
July-September 1943	85, 250	11, 659	25, 798	3, 238	37, 058	58, 6
October-December 1943	72, 549	10, 575	20, 925	2, 462	32, 349	55, 0
January-March 1944	76, 480	11, 520	22, 097	2, 921	35, 939	55, 8
April-June 1944	71, 818	11, 674	21, 090	2, 935	32, 022	57, 4
July-September 1944	59, 883	11, 898	18, 097	2, 832	23, 806	58, 9
October-December 1944	50, 788	10, 106	16, 076	2, 436	19, 896	42, 1
January-March 1945	55, 320	11, 868	18, 046	2, 590	20, 617	51, 9
April-June 1945	62, 112	12, 456	21, 673	3, 162	22, 320	59,
July-September 1945	56, 635	12, 766	20, 048	2, 697	19, 011	61,
October-December 1945	54, 283	13, 942	18, 526	2, 462	17, 478	60,
January-March 1946	65, 038	18, 148	21, 705	2, 797	19, 832	74,
April-June 1946	64, 267	18, 951	20, 612	2, 908	18, 948	79,
July-September 1946	62, 482	19, 947	19, 695	2, 596	17, 847	84,
October-December 1946 [2]						

[1] Includes stage "not stated."

[2] At the time of publication complete figures were not available for this period.

Source: Form 8958-B, U. S. P. H. S., Venereal Disease Division, Statistics Section, 4/3/47 (JP/ML).

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FEDERAL SECURITY AGENCY
United States Public Health Service

FEDERAL SECURITY AGENCY

UNITED STATES PUBLIC HEALTH SERVICE

THOMAS PARRAN, *Surgeon General*

Editor: J. R. HELLER, Jr., *Medical Director*
Chief, Venereal Disease Division

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Some Significant Aspects of Venereal Disease Research

Work of the Venereal Disease Research Laboratory, Staten Island, N. Y.

J. F. Mahoney,[1] Medical Director, United States Public Health Service

The Venereal Disease Research Lab- atory was organized in 1927, as a phase the activity of the Division of Venereal iseases of the United States Public ealth Service. From a very modest be- nning the facility has expanded in scope a point at which a total of 75 scientific rsonnel at present are members of the rmanent staff. From a program which ntered almost entirely on experimental nimal syphilis, the laboratory has been nlarged to encompass investigative ef- rts directed toward the solution of fun- mental scientific problems concerned ith the venereal group of diseases, to- ard the clinical evaluation of treatment ethods, and to control work in the serum agnosis of syphilis. The latter activity ow reaches into the majority of coun- ies of the Western Hemisphere, as well all States and Territories of the United tates.

General

In recent years the work has been di- ided almost equally between abstract roblems involving the basic biology of e causative organisms of syphilis and onorrhea and the development of treat- ent methods designed to be helpful in e control of the several diseases. In yphilis these efforts have been directed oward penicillin therapy. Current evi- ence indicates that the period necessary r the adequate treatment of early syph- is may be curtailed from 18 months, as rmerly practiced, to about 8 days. Be- ause of the brevity and lack of toxicity f penicillin therapy, practically all pa- ents complete treatment as compared to n estimated 10 percent who received ade- uate treatment by the arsenic-heavy etal forms of routine therapy. This mprovement carries with it a reduction in the number of persons in an infectious stage of the disease. If the epidemiology of syphilis follows the usual pattern, the mathematical decrease in opportunity for transmission eventually should initiate a sharp decline in the incidence of the disease.

A similar situation appears to be developing in gonorrhea. Through penicillin therapy the infectious period of the disease appears to have been shortened to a matter of several hours after the patient is placed under treatment. This curtailment can hardly fail to exert an influence upon the future incidence of the disease and upon the importance to be attached to the infection as a public health entity.

These changes will undoubtedly alter the program of investigative work to be followed in the laboratory and will probably dictate that emphasis be placed upon studies of an abstract nature rather than upon those dealing with diagnosis and therapy, with basic biology in place of applied research. Some of the general lines of study are outlined below.

The Field of Antibiotics

The loss of susceptibility of a bacterial species to an antibiotic is always a possibility. Although increasing resistance to penicillin on the part of the causative organisms of gonorrhea and syphilis has not been noted up to the present time, search for a replacement product is indicated. In entering this field the laboratory has adopted a program involving: (1) a canvass of the usual bacterial and mycological species for naturally present antibiotic capacities; (2) the investigation of the deep-sea and tidewater bacterial species for outstanding antibiotic abilities; (3) the study of botanical species for the presence of antibiotics capable of destroying pathogens of man; and (4) an effort to induce botanical species to develop an antibiotic ability against a specific strain of pathogen.

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All new agents encountered in the work are tested against a spectrum of 20 bacterial strains and against 3 viruses, and for their ability to inhibit the growth of malignant tissue cells in tissue culture. Antibiotics which lack usefulness in the venereal disease field may be scrutinized by means of this broad spectrum for possible value in other fields of medicine or public health.

Syphilis Serology

The work in syphilis serology forms one of the principal activities of the laboratory. The program may be considered in relation to (1) research, (2) training, (3) serologic testing, and (4) evaluation studies, surveys, distribution of standard materials, and other functions concerned with the Nation-wide elevation of standards of test performance.

In the research field, work will be continued along the lines of developing improved technical methods; forming an estimate of the value of cardiolipin antigens and their further refinement and purification; improving technical methods employed in spinal fluid testing, with clearer interpretation of findings; and the study of patients having positive serologic reactions due to causes other than syphilis. A very basic study in serology, now under way, is the effort to account for the failure of procedures employing lipoidal antigens to escape the influence of racial and environmental factors. A very general cause, other than syphilis, for the high prevalence of positive findings appears to be operative in the American Indian, the Negro race, the laboring class in Mexico, and the Indian in Guatemala.

The training of advanced students in the technical aspects of syphilis serology continues to attract approximately 70 students each year. These students are drawn from the laboratories of the health departments of the States and Territories, from the laboratories of Central and South American countries, and from hospital and private laboratories throughout this country. Training has also been extended to personnel of the Veteran Administration.

As an adjunct to the training activit all recognized serologic tests for syphili are routinely employed. A total of 10 determinations is carried out on each spec men received, thus affording an excellen opportunity for the student to observe th discrepancies and vagaries which no infrequently occur.

As part of the serology program, th laboratory conducts an annual evaluatio survey, which is open only to State healt department laboratories. The surve makes it possible for each health organization to estimate the efficiency of its laboratory. In the near future this function, together with the training o technical personnel, the standardizatio and distribution of reagents, and the abstracting and distributing of all pertinen material appearing in both foreign an domestic literature, will be placed unde the guidance of a subsidiary organizatio through which more complete guidanc in the serodiagnosis of syphilis will b extended throughout the Western Hemisphere.

Immunization in Syphilis

An important field of speculation is concerned with the development of a contro mechanism through the use of an immunizing agent. Before any constructiv steps may be taken in this direction, i becomes necessary to cultivate the syphilis spirochete. A continuing effort toward this end is being made in th laboratory. Each new thought, innovation, or discovery occurring in the fiel of general bacteriology is canvassed as t its ability to promote the artificial growt of virulent syphilis organisms. Up to th present, there have been no encouragin developments. The work will be continued, however, as it represents a logica approach to one of the most importan problems in syphilis. Success will ope the way for studies in immunity and i the development of skin testing, and fo placing the serology of syphilis upon more scientific basis.

nzyme Pattern of Culture Strains of Spirochetes

This field of study forms a corollary to
e work in bacteriology. The so-called
lture strains of spirochetes are studied
the Warberg apparatus, for the pur-
se of identifying essentials of metabol-
n which, when incorporated into artifi-
l media, may promote the growth of
e syphilis organism without loss of
rulence.

fe Cycle of the Spirochaeta Pallida

The ready destruction of the syphilis
rochete by therapy without curing the
ease, the presence of an immune re-
onse to the infection, and the phenome-
n of latency, all point toward the
ssibility of the syphilis organism pos-
sing a resting stage or transition form
present not recognized. A combined
logic and photophysical investigation
s been undertaken through a coopera-
e arrangement between this laboratory
d the Bell Telephone Research Labo-
ory. The approach is through ultra-
croscopy, ultraviolet microscopy, and
kfield motion picture photography un-
magnifications up to 20,000 diameters.
e biologic aspects of the work are con-
buted by this laboratory. Many thou-
nds of feet of film at high magnifica-
ns have been taken of culture strains
spirochetes. The efforts have failed
reveal the consistent presence of forms
ich could be interpreted as represent-
a transition form of the organism.

Syphilis-Like Diseases

Several diseases (yaws, pinta, and
ntaneous spirochetosis of rabbits) are
sed by organisms indistinguishable
m the Spirochaeta pallida. All are
racterized by the same type of labora-
y response and all are amenable to
same therapy. Animal and bacteri-
gic studies are in progress toward a
re complete knowledge of the causa-
organisms and the possibility of em-
ying the nonpathogenic rabbit infec-
n as an immunizing factor in syphilis.
causative organisms of the syphilis-like diseases are also subjected to study from the standpoint of cultivation.

Guatemala Project

It has been considered impractical to work out, under postwar conditions in the United States, the solution of certain phases concerned with the prevention and treatment of syphilis. These problems are largely concerned with the development of an effective prophylactic agent for both gonorrhea and syphilis and the prolonged observation of patients treated with penicillin for early syphilis. Because of the relatively fixed character of the population and because of the highly cooperative attitude of the officials, both civil and military, an experimental laboratory in Guatemala City has been established. The work has been financed through a grant from the United States Public Health Service to the Pan American Sanitary Bureau. Very definite progress has been made in the work of organizing the study, and actual experimental studies will be initiated in the immediate future.

Radioactive Penicillin Study

From an effort to determine the fate and distribution of penicillin in the body evolved a study on the production of penicillin by surface growth on a medium containing radioactive sulfur. Initial trials indicated the capability of the Fleming mold to metabolize radioactive sulfur. The resulting penicillin, when reasonably pure, is radioactive and has a half-life of approximately 70 days. Upon receipt of an adequate supply of the isotope, a sufficient quantity of radioactive penicillin will be prepared to carry out tracing experiments in animals—leading toward an accurate determination of blood levels, the storage, and excretion of the antibiotic. A pilot study in cancer, probably breast adenocarcinoma, may also be undertaken.

Antibiotics in Malignancy

As previously mentioned, all new antibiotic substances which are produced are checked for their ability to inhibit the multiplication of malignant cells in tissue culture. This represents a departure from the actual field of venereal diseases, but the digression is in the interest of preventing the loss of potentially valuable compounds. The scrutiny of these preparations from the standpoint of malignancy is effected through a cooperative arrangement with the Memorial Hospital of New York. A fraction usually discarded in the preparation of crude penicillin from surface cultures has been found to possess a consistent capacity to inhibit certain types of rapidly dividing cells in tissue cultures. The work has not yet progressed to a definitive stage.

Gonorrhea

Investigative work in gonorrhea has declined appreciably since the advent of penicillin therapy. Average therapy at present consumes 4 to 6 hours and produces satisfactory results in a large majority of instances. Re-treatment may be required in a small proportion (5 percent), but all patients respond eventually to antibiotic therapy. The simplicity of treatment and the rapidity of average response have greatly altered the status of the disease as a cause of human suffering. Although there are many phases of the biology of N. gonorrhoeae which are not clear at this time, and although the present status of culture diagnosis leaves much to be desired, the only intensive investigative effort which appears to be warranted from the public health standpoint lies in the field of prophylaxis.

Although attractive from a theoretical standpoint, the development of an immunizing agent may be difficult or improbable considering the past failure to produce artificially any appreciable protective response, and the readiness with which a patient may be reinfected after an apparent clinical and bacteriologic cure. However, any new developments which may indicate the achievement of an immune response in gonorrhea will be exploited as rapidly as possible.

Experimental Syphilis

The studies in experimental syphilis in the animal have encompassed prophylaxis immunity, and therapy.

The methods of chemical prophylaxi previously developed for human usag were impractical and have not been generally used because of the many undesirable features. The specifications for a ideal type of chemical prophylactic hav been established, and suitable preparations have been devised and studied fo their spirocheticidal effect in experimental syphilis. The final phase of the experiment, the conduct of a field trial, under consideration.

The problems of man and animal immunity are rather complex and litt understood. Cross-immunity with diffe ent strains of spirochetes has been demo strated, but the reactions were too wea for effective usage. Homologous and he erologous strains of Spirochaeta pallid have produced degrees of immunity var ing with different stages of the diseas The effectiveness and duration of imm nity were limited and difficult to mai tain. The penicillin therapy of syphil was first studied in the animal, then man. Studies were designed for the pu pose of establishing whether or not pen cillin alone could cure early and late syphilis; of determining how quickly t disease might be cured; and of determi ing the optimum time-dose relationsh of penicillin. Animal and clinical studi have been correlated in all therapeut schedules. In order to evaluate respon to therapy, the posttreatment investig tions have included extensive epidemi logic and clinical studies of the patien and a detailed serologic study.

Individual Problems

In addition to the community effort which all members of the laboratory co tribute to the furtherance of the bro problems under study, each worker is e couraged to carry out fundamental vestigative work involving abstract pro lems in the various sciences represent in the structure of the laboratory. A wi variety of interesting and original stud are engendered by this policy.

The Quantitative Kahn Test[1]

Ad Harris, Serologist, United States Public Health Service

uantitative serologic findings are lely used as diagnostic aids in the atment and control of syphilis by the ited States Public Health Service and er agencies. The use of a single quan- itive procedure common to all United tes Public Health Service medical ter laboratories has been adopted in er to eliminate many of the serologic crepancies obtained when two or more ds of testing methods are employed. e quantitative Kahn test has been sen for this purpose.

However, even this single procedure been open to several interpretations the method, which cause varied find- s. Alternate methods, recommended the past, have included the use of ndard or sensitized antigen, 0.01 ml. 0.025 ml. of diluted antigen, and 0.9- 2.5-percent saline solution.[2] Two thods have been used for preparing um dilutions, one producing dilutions 1:5, 1:10, 1:20, 1:30, etc., and the ier producing doubling dilutions of 1:2, 4, 1:8, 1:16, etc.

t was felt desirable to publish the tech- of the quantitative Kahn test as per- med at United States Public Health rvice medical center laboratories, ce the technical details of the pro- lure represent the latest prescribed hor technic through December 1946. rtain of these details are not found in 1944 *Technics of Serodiagnostic Tests* *Syphilis.*[3]

The following technic, which is stand- l serologic quantitative procedure in all United States Public Health Service medical center laboratories, was assembled and brought up to date from previously published methods so that reported test findings may more closely reflect serum changes rather than the effects of alternate methods of testing. Antigens for this test are supplied by the Venereal Disease Research Laboratory, Staten Island, N. Y., to United States Public Health Service medical center laboratories.

1. *Preparation of serums.*—Quantitative tests are performed on all serums producing 4 plus reactions[4] in the standard Kahn test as soon as possible after the standard test is completed. Serums giving zonal reactions, i. e., 4 2 —, 2 — —, etc., or atypical reactions such as 2 2 2, 1 1 1, ± ± ±, should also be examined with the quantitative method. Inactivated serum found to contain particulate debris should be recentrifuged before serum dilutions are prepared.

2. *Preparation of serum dilutions.*—Serial serum dilutions are prepared by mixing serum with 0.9-percent saline in doubling proportions so that final dilutions of 1:2, 1:4, 1:8, 1:16, 1:32, and 1:64 are obtained. Freshly prepared saline solutions made from reagent quality sodium chloride and good distilled water are used for this purpose.

Into each of six Kahn tubes place 0.5 ml. of 0.9-percent saline and then add 0.5 ml. heated serum to tube 1. This serum-saline solution is well mixed by being drawn into the pipette and emptied at least three times, after which 0.5 ml. of this mixture is transferred to tube 2. Adequate mixing is again accomplished and 0.5 ml. transferred from tube 2 to tube 3. This procedure is continued until the sixth tube contains 1.0 ml. of serum-saline. After mixing, the pipette is allowed to remain in this tube. Serum dilutions should be tested as soon as possible after they are prepared.

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[1] From the Venereal Disease Research Labo- ory, Staten Island 4. N. Y. Medical Direc- J. F. Mahoney in charge.

[2] The reader is referred to the following icle in this issue of J. Ven. Dis. Inform. 136), entitled: *A Revised Note on Quan- ative Kahn Tests Employing 0.9-percent and percent Salt Solution Systems,* by Reuben Kahn, Ann Arbor, Mich.

[3] U. S. Public Health Service: *Technics of Serodiagnostic Tests for Syphilis.* V. D. Graphic No. 85, 1944, pp. 99–104.

[4] See page 136 for most recent suggestion concerning routinely quantitated serums. (*A Revised Note on Quantitative Kahn Tests Employing 0.9-percent and 2.5-percent Salt Solution Systems,* by Reuben L. Kahn.)

3. *Performance of test.*—The antigen suspension is prepared in the usual manner by mixing Kahn standard antigen with 0.9-percent salt solution in accordance with the antigen titer. After standing 10 minutes (but not longer than 30 minutes), the antigen suspension is pipetted in 0.01-ml. amounts to the bottom of Kahn tubes (12 x 75 mm. o. d.). Antigen suspension is added to not more than 30 tubes (or one rack) at one time, and diluted serum is immediately added to these tubes.

With the pipette that has remained standing in the highest serum dilution (tube 6), 0.15 ml. is transferred into the corresponding tube containing antigen suspension. Then, with the same pipette, 0.15 ml. is transferred from serum dilution tube 5 to antigen suspension tube 5. In the same way, aliquots of all serum dilutions are transferred to the tubes containing antigen suspension, in series. The rack of tubes is shaken in a mechanical shaker (275 to 285 oscillations per minute) for 3 minutes. NOTE: If racks are not immediately placed in the mechanical shaker, they should be hand-shaken for about 10 seconds and then be allowed to stand not longer than 3 minutes.

After racks are removed from the mechanical shaker, 0.5 ml. of 0.9-percent saline is added to each tube. Saline should be added to only one rack at a time. Racks are then shaken for a few seconds to insure proper mixing, and results are read without delay.

4. *Reading results.*—The method of reading quantitative results is the same as that used for the qualitative test. A microscope mirror and gooseneck-type of desk lamp containing a blue, inside-frosted bulb are needed for this purpose. The mirror is placed on the table wit the concave surface upward. The ligl is adjusted so that rays fall directly o the mirror, but so that the bulb imag cannot be seen by the reader.

The tube is held in slanted position aj proximately 1 inch above the mirror su face, and particles are observed in th mirror image. Care must be exercised t differentiate between lint or fibrou debris, serum particles, and antige clumping.

The reading “end point” is the greate dilution of serum wherein a definit precipitate is observed. This definit precipitate includes all readings of 4 plu 3 plus, and 2 plus. For purposes of qua titation the 1-plus and plus-minus rea tions are considered to be negative. T be considered a titration end point, th last definite reaction must be followed b a weak or negative reaction in the ne greatest serum dilution.

5. *Reporting quantitative results.*—Th results of this test are reported on a Kah unit basis. When a serum gives a 4 plu 3 plus, or 2 plus reaction in the quantit tive procedure, the results are compute according to the formula S=4D, in whic S is the potency of the serum in terms units and D the highest dilution showin definite precipitate. Thus, if the seru is positive in 1:8 dilution and highe dilutions are negative, the report is 8 x or 32 Kahn units; if serum is positive i 1:16 dilution and higher dilutions ar negative, the report is 16 x 4, or 64 Kah units, etc.

A serum giving 4 plus reaction in th standard Kahn test and only negative r actions on dilution is reported as havin a titer of 4 Kahn units. Serums produ ing 3 plus, 2 plus, or 1 plus reactions i the standard Kahn test are, for purpose of quantitation, reported as having titer of 3, 2, and 1 Kahn units respectively.

Serums that produce positive reaction in dilution of 1:64 (256 Kahn units) ar examined in higher dilutions until a pos tive reaction is no longer obtaine Higher dilutions of serum may be readil prepared from the diluted serum remai ing in the sixth tube.

Four additional dilutions may be pre-
ared by adding 0.5 ml. of 0.9-percent
aline to each of four Kahn tubes and
ransferring 0.5 ml. of diluted serum from
ıbe 6 to the first tube of this series (tube
). Mixing is accomplished as before and
.5 ml. transferred from tube 7 to tube 8.
'his is continued until 1.0 ml. of serum
aline is in tube 10. These mixtures now
epresent serum dilutions of 1 : 128, 1 : 256,
: 512, and 1 : 1,024, or end-point readings
f 512, 1,024, 2,048, and 4,096 Kahn units.
he most potent serums will usually give
egative reactions in this range. These
erum dilutions are tested in the same
ıanner as were the other dilutions, and
esults are reported as previously stated.

This technic suggests the preparation
f only six serum dilutions for primary
esting by the quantitative Kahn proce-
ure and the testing of greater dilutions
repared from only those serums found
) react positively in the sixth dilution.
his practice has been found to be prac-
cal in certain laboratories. Ten serial
lutions of serum are prepared and tested
utinely in the Venereal Disease Re-
earch Laboratory, since such a large per-
entage of the serums tested react in the
ne between the sixth and tenth dilu-
ons.

In order that the time factor involved
ı preparing and testing additional dilu-
ons of high-titered serums may not be a
ariable in interlaboratory serologic sur-
eys, the testing of the 10 dilutions of
ıch positively reacting serum (4 plus) in
e quantitative Kahn test, at one time,
recommended on all serums submitted
r this purpose.

Discussion

The zone of quantitative interpretations applicable to the Kahn test, wherein results obtained by the qualitative procedure such as 3, 2, or 1 plus are reported as 3, 2, or 1 units, is an area wherein dissimilar results may be obtained by the two methods. This is due principally to the fact that the quantitative procedure is not a true extension of the qualitative method.

Qualitative test reports are obtained by averaging six individual tube readings of three different serum-antigen proportions, whereas the quantitative units (greater than 4) are obtained from a single reading of a tube containing 15 : 1 serum (diluted)-antigen ratio, which is a more reactive proportion than the 3 : 1, 6 : 1, and 12 : 1 serum-antigen ratios employed in the qualitative test.

Quantitative results could be more accurately obtained by divorcing these two procedures and predicating all "unitage" on results obtained with undiluted serum and serial serum dilutions tested with 0.01 ml. of antigen emulsion. This could be accomplished either by performing the quantitative test on all serums or by quantitating all serums producing any degree of reactivity in the qualitative test.

Either of these choices would materially increase the work load for the testing laboratory since each quantitative test may require 10 times the effort and time necessary for the performance of a qualitative test. For this reason, the quantitating of only the strongly positive qualitative Kahn reactors has been recommended as a routine testing practice for the medical center laboratories.

A Revised Note on Quantitative Kahn Tests Employing 0.9- and 2.5-Percent Salt Solution Systems[1]

Reuben L. Kahn, Sc. D.,[2] Ann Arbor, Mich.

Inquiries are occasionally received in this laboratory regarding the technic of the quantitative Kahn test.[3] This test is not performed identically by different workers. Some employ serial dilutions of serum with 0.9-percent NaCl solution and others employ serial dilutions of serum with 2.5-percent NaCl solution. The quantitative test with 2.5-percent salt solution is generally more sensitive than that with 0 9-percent salt solution to the extent of approximately one or two additional serum dilutions. Thus, a serum that gives an end point in a 1 : 20 dilution with 0.9-percent salt solution may give an end point in 1 : 30 or 1 : 40 dilution with 2.5-percent salt solution.

In the reading of the results of the quantitative test with 2.5-percent salt solution, emphasis has been given to the fact that the negative reactions tend to show clouding and precipitation on standing. This occurs even when they stand for relatively short periods, such as 5 to 10 minutes. For this reason the results should be read without delay after the addition of the 0.5-cc. amounts of 2.5-percent salt solution, following the 3-minute shaking period. Apparently it is this concentration of salt solution which causes the clouding and precipitation on standing. Shaking by hand for a few seconds disperses such precipitates and renders the tests clear again. Those workers who have not paid strict attention to this shaking of the tubes just before reading soon found themselves reading particles due to standing of the test in the presence of the 2.5-percent sal solution.

Some years ago we recommended th quantitative technic with the 2.5-percen salt solution, because studies in this laboratory indicated that the salt concentration favors syphilitic reactions an renders them more sensitive than 0.9-percent salt solution. The increased sensitivity seemed desirable because th quantitative test was then used largel in known cases of syphilis in the follow up of therapy.

There are, however, points in favor o the routine use of quantitative Kah tests with 0.9-percent salt solution in serum-antigen ratio of 15 : 1. Durin recent years quantitative tests have bee used as an aid in diagnosis; hence, th high sensitivity of the 2.5-percent syste may also introduce an element of nonspecificity in certain cases. The test with the 0.9-percent system do not sho a tendency toward clouding on standin and, therefore, do not require agitatio immediately before reading. Furthermore, quantitative results with the 0.9 percent system show closer correlatio with the results of the standard Kah test than quantitative results with th 2.5-percent system. Thus, in order t avoid confusion between the terminolog of the standard Kahn test and the uni terminology of the quantitative test, w arbitrarily correlated the two terminologies as follows: One plus and 2 plus i the standard test are arbitrarily considered as 1 unit and 2 units in the quantitative test. Serums giving 1 and 2 plus reactions with the standard Kahn tes generally give negative reactions on seria dilution of serum. Serums giving 3 plu reactions in the standard test may giv rs of 8 or 10 or higher in the quantita- test. The results are then reported to sicians as positive 3 plus in the stand- test and also the number of units en by the quantitative test. However, en performing quantitative tests with 2.5-percent NaCl system with weakly itive serums, considerable numbers l be found to give quantitative titers. n this laboratory quantitative tests h both the 0.9-percent and 2.5-percent NaCl systems are employed in most cases. This scheme is obviously not feasible for general application. As to the choice between the two quantitative technics, we believe that in view of the fact that quantitative Kahns are no longer used almost exclusively as serologic checks on therapy in syphilis, but are used increasingly as an aid in the establishment of a diagnosis, the 0.9-percent NaCl system should be preferred.

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[1] This is a revision by the author of an article, *A Note on Quantitative Kahn Tests Employing 0.9-percent and 2.5-percent Salt Solution Systems,* which was published in the Journal of Laboratory and Clinical Medicine, 31: 1382–1383 (December 1946). The revised note was submitted for publication in the JOURNAL OF VENEREAL DISEASE INFORMATION in April 1947.

[2] Serology Laboratory, University Hospital, University of Michigan.

[3] Kahn, R. L.: *Technique of Standard Kahn Test and of Special Kahn procedures.* Ann Arbor. (June 1946) University of Michigan Press. Pp. 22–27.

Preservation of Sheep Red Cells for Complement-Fixation Tests

I. An Improved Method

Portnoy, Associate Serologist, H. N. Bossak, Associate Serologist, and Ad Harris, Serologist, United States Public Health Service [1]

he quality of sheep erythrocytes used complement-fixation procedures has n shown to have a pronounced effect test results. Eagle (*1*) attributed rked reduction in test sensitivity to gile sheep cells and, with others (*2, 3*), ised against the use of such cells.

ed cells normally undergo spontaneous erioration soon after collection (*1*), l a satisfactory method of preservation long been sought by laboratories em- ying complement-fixation tests. Nu- rous methods for preserving red cells, ploying either bacteriostatic agents *4, 5, 6*), nonbacteriostatic preserving utions (*7, 9, 10, 11, 12, 13, 14*), or a abination of both (*8, 15*), have been orted. Some of these procedures were lved as blood-preserving solutions for nsfusion purposes. Excellent results h sheep cells were recently reported Bukantz et al. (*14*), employing a modi- l Alsever's solution, and by Ashby (*9*), ng 3.8-percent citrate.

he work herein reported was under- en to evaluate the relative efficiency of several methods recommended for the servation of sheep erythrocytes. During the course of the study a simplified modification of Ashby's technic was developed. This method, found to be as effective and simpler than the best of the other tested procedures, has been routinely employed in this laboratory for the past 2 years.

Observations on which relative cell fragility was based were made under time and temperature conditions associated with the Kolmer complement-fixation test, since these conditions were considered to be most critical. Blood collected by each of the following methods was routinely stored in the refrigerator at 6° to 8° C. Except in the case of Ashby's technic, aliquots of each collection were removed aseptically for testing, filtered through gauze, and washed three times with 8 to 10 volumes of isotonic saline containing 100 mg. of magnesium sulfate per liter. Cells were then packed to constant volume and 2-percent suspensions prepared. Supernates were examined for evidence of hemolysis after each washing and after storage of the suspensions in the refrigerator overnight.

Method

Technics tested and results obtained with each are herein described.

A. *Kolmer's citrate* (8).—Five hun-

From the Venereal Disease Research Lab- tory, U. S. Marine Hospital, Staten Island, Y. Medical Director J. F. Mahoney in rge.

dred milliliter quantities of sheep blood were collected in clean, nonsterile flasks containing 15 ml. of 10-percent sodium citrate solution and 1.0 ml. of formalin, U. S. P. After attaining room temperature, cells collected in this solution were stored in the refrigerator. Aliquots were removed nonsterilely for testing.

B. *Modification of Kolmer's citrate.*—Blood was collected in the same manner as above. After cooling to room temperature the cell suspension was filtered through two thicknesses of gauze and diluted with an equal volume of 0.85-percent salt solution containing 5 percent dextrose and 0.1 percent magnesium sulfate.

C. *Boerner-Lukens* (8), *modified.*—Sheep blood was collected and defibrinated with glass beads. Nine volumes of blood were then mixed with one volume of preserving solution containing 8.0 gm. of sodium citrate, 20.0 gm. of dextrose, and 100 ml. of aqueous 1:1,000 merthiolate solution.

D. *Method of Ashby* (9).—Sheep cells were collected aseptically in an equal volume of 3.8-percent sodium citrate solution. The mixture was then diluted further with 10 volumes of sterile 3.8-percent citrate solution, dispensed in sterile, rubber-stoppered vaccine bottles, and stored in the refrigerator.

To obtain cells the citrate solution was decanted. Blood more than 3 weeks old was first suspended in 0.4- to 0.5-percent hypotonic saline. The cells were then filtered through two layers of gauze and washed with isotonic saline until the supernate was clear.

E. *Modification of Ashby's method (as developed in this laboratory).*—Ten volumes of blood were collected aseptically from the external jugular, into 12 volumes of sterile 3.8-percent sodium citrate solution. Before collection, the required quantity of preserving solution was placed in the bleeding flask and the entire apparatus sterilized in the autoclave at 15 lbs. pressure for 15 minutes.

Blood collected in this solution and allowed to cool to room temperature was stored in the refrigerator for a 24-hour period before being dispensed into ster 60-ml. vaccine bottles. Cells were moved from these bottles, as requir with a sterile syringe and needle.

F. *Alsever's solution* (10).—Blood w collected aseptically into an equal volu of preserving solution containing 18 gm. of anhydrous dextrose, 4.18 gm. sodium chloride, and 8.0 gm. of sodi citrate in 1,000 ml. of distilled water. ' minimize caramelization of dextrose, p duced by autoclave sterilization of t assembled preserving solution, a 20-p cent solution of dextrose was first p pared and sterilized by steaming for minutes. The required quantity of t solution was then added to a previous autoclaved solution of sodium chlori and sodium citrate. It was later fou practical to prepare the Alsever's soluti aseptically, in toto, by filtration throu a sterile Seitz filter containing a No. serum pad washed prior to sterilizati with 2 volumes of distilled water.

G. *Modified Alsever's solution* (16.).—Alsever's solution was modified the addition of 0.55 gm. of citric acid p liter to permit autoclaving of the p serving solution. After sterilization, t solution showed very slight or no eviden of caramelization.

Results

1. *Methods A and B.*—Sheep blood, c lected from eleven individual sheep a preserved in citrate solution containi dextrose (B) was satisfactory for co sistently longer periods of time th when preserved in citrate solution alo (A). In no case, however, were ce usable for longer than 2 weeks.

2. *Methods B and C.*—In comparati tests on blood from four sheep, ce defibrinated and preserved in a soluti containing merthiolate, dextrose, and trate (C) remained usable for a long period of time than those preserved citrate and dextrose (B). Considerab hemolysis was observed during the was ing of cells preserved by the latter meth as compared to little or none with meth C. However, after several weeks

age the blood from two sheep changed n red to dark brown when preserved the merthiolate-dextrose-citrate me- n. Marked increase in hemolysis dur- washing accompanied this color nge and the 2-percent suspension pre- ed with these cells was tinged with ple.

Comparison of methods B, D, and -These three methods were employed ultaneously in comparative tests on d from fourteen individual sheep. cells were stored in the refrigerator tested at frequent intervals over pe- ls of time ranging from 31 to 74 days. s preserved with 10-percent sodium ate plus dextrose (B) and Ashby's nic (D) showed some degree of hemo- s during washing and in the 2-percent pension, after refrigerator storage, at test intervals. On the other hand, se preserved by the author's modifica- of Ashby's method (E) remained con- ently satisfactory for use throughout entire period of time, with one excep- . In this instance blood from one ep, preserved for 74 days, gave some cation of increased fragility during hing, but the 2-percent suspension pared from it was not hemolyzed after age overnight in the refrigerator at o 6° C.

Comparative results with methods nd F.—Cells were collected from four ep by each method and stored in the igerator. Comparative tests were formed at intervals over a period of lays. Cells preserved with Alsever's tion (F) became increasingly fragile lirect ratio to the length of storage e. Those preserved by the modified by's method (E) gave uniformly ex- ent results at all test intervals.

Results obtained with methods E and -Both modified Alsever's solution (G) the modified Ashby method employ- 3.8-percent sodium citrate (E) were nd to be equally satisfactory for pre- ing cells from three individual sheep a period of 90 days. Hemolysis was observed either in the washing or in 2-percent cell suspension stored over- t at refrigerator temperature.

Effect of oxygenation on keeping qualities of preserved sheep blood.—Aeration of the preserved blood, to provide additional oxygen (*15*), appeared to be important in minimizing darkening of the cells and in enhancing keeping quality during shipment or in storage, when sealed containers were used. It was observed that cells in transit for 5 to 13 days often darkened. In most cases a reversal to the normal bright red color occurred during washing. In other instances the cells deteriorated to the point where they were unsatisfactory for use because of marked hemolysis. This situation was not encountered when cells were stored in bulk in cotton-stoppered flasks providing sufficient surface for adequate aeration. Experiments to determine further the effect of oxygen were performed.

Small quantities of blood from three sheep were dispensed into rubber-stoppered vaccine bottles. Oxygen (from an oxygen cylinder) was bubbled into one bottle of blood from each sheep for 1 minute. Carbon dioxide (from a CO_2 cylinder) was bubbled into a second set for the same period of time, and the third set was untreated. All were placed in the incubator at 37° C. for 6 days to approximate the most severe temperature conditions which might be encountered in shipment. Those cells containing added CO_2 darkened perceptibly at once, and after the 3-day storage period showed extreme or complete hemolysis. The oxygenated cells were slightly darkened at the end of the 6-day incubation period, but regained their normal bright red color during washing. The supernate from the first wash showed a trace of hemolysis but no further hemolysis was evidenced in the second and third washings or in the 2-percent suspension stored overnight in the refrigerator. The untreated blood darkened considerably within 3 days during storage at 37° C. Increase in cell fragility was indicated by hemolysis during all the washings and in the overnight 2-percent suspension. From these results it would appear that the keeping quality of sheep blood, in small containers, during shipment or storage, is to some extent dependent on the quantity of oxygen available to the erythrocytes.

Hydrogen peroxide provided a readily available source of oxygen. The addition of 6 parts of hydrogen peroxide solution (3-percent, reagent grade) per 100 parts of blood mixture adequately protected sheep erythrocytes exposed to 37° C. temperature for 3 days. A slight darkening of the cells was evidenced by the end of this period, but reversion to the normal bright red color occurred during washing. Blood not treated with hydrogen peroxide darkened considerably and proved unsatisfactory for use.

Discussion

The maintenance of a reservoir of sheep cells satisfactory for use in complement-fixation tests is dependent both on the physical condition of the sheep used for bleeding and on the method of collection and preservation. Living quarters, diet, worming, and rest periods between bleedings are factors of importance in minimizing cell fragility (*15*). However, even cells of excellent quality deteriorate rapidly unless they are collected and stored aseptically in a satisfactory preserving solution.

Evaluation of results obtained with the several methods described established 3.8-percent sodium citrate as an ideal sheep blood preserving solution because of the simplicity of preparation and the uniformly excellent results obtained with it over a period of 2 years. Modified Alsever's solution appeared to be equally satisfactory in the limited number of comparative tests performed.

Summary

1. Seven methods recommended for the preservation of sheep blood, for use in complement-fixation tests, were surveyed.

2. A modification of Ashby's method, developed by the authors, is described.

3. The role of oxygen in enhancing the keeping qualities of sheep cells during shipment was investigated.

Conclusions

1. A modified Ashby technic, as described here, provides a simple and reliable method for preserving sheep ce for use in complement-fixation pro dures.

2. Oxygenation of preserved she blood retards darkening and deterio tion of the cells during storage or sh ment. Hydrogen peroxide was a sat factory source of oxygen for this purpo

References

1. Eagle, H.: The Laboratory Diagnosis Syphilis. C. V. Mosby. St. Louis, 1937. Pp. 94–96.
2. Kolmer, J. A.: The Kolmer Complem Fixation Test For Syphilis. Supp. 11 to Ven. Dis. Inform., June 1940
3. Wadsworth, A. B.: Standard Methods the Division of Laboratories and search of the New York State Depa ment of Health. Second Editi Williams & Wilkins Co. Baltimo Md. 1939. P. 217.
4. Armand-Delille, P.; Launoy, L.: S bilisation des globules rouges par solutions très diluées di formol. Com rend. Soc. de Biol., 69: 40–41, 1910.
5. Bernstein, E. P.; Kaliski, D. J.: use of formalinized sheep cells in c plement fixation. Ztschr. f. Immu tätsforsch. u. Exper. Therap., 13: 4 495, 1911–12.
6. Baker, A. H.: A useful preservative whole blood. Brit J. Exper. Pat 6: 201–202, 1925.
7. Rous, P.; Turner, J. R.: On the preser tion in vitro of living erythrocyt Proc. Soc. Exper. Biol. & Med., 12: 1 124, 1914–15.
8. Kolmer, J. A.; Boerner, F.: Appro Laboratory Technic. (Boerner a Lukens solution, p. 662.) Fourth E tion. D. Appleton-Century Co., I New York. 1945.
9. Ashby, W.: Stored sheep cells for complement fixation test. Am. J. Cl Path., Tech. Sect., 8: 6–7, 1944.
10. Alsever, J. B.; Ainslie, R. B.: A n method for the preparation of dil blood plasma and the operation of complete transfusion service. N York State J. Med., 41: 126–135, 19
11. De Gowin, E. L.; Harris, J. E.; Bell, Rates of hemolysis in human bl stored in dextrose solutions and other mixtures. Proc. Soc. Exper. Bi & Med., 49: 481–483, 1942.
12. Loutit, J. F.; Mollison, P. L.: Adv tages of a disodium-citrate-glucose m ture as a blood preservative. B M. J., 2: 744–745, 1943.
13. Denstedt, O. F.; Osborne, D. E.; Sta field, H.; Rocklin, I.: The survi of preserved erythrocytes after tra fusion. Canad. M. A. J., 48: 477–4 1943.

Bukantz, S. C.; Rein, C. R.; Kent, J. F.: Studies in complement fixation. II. Preservation of sheep's blood in citrate dextrose mixtures (modified Alsever's solution) for use in the complement fixation reaction. J. Lab. & Clin. Med., 31 : 394–399, 1946.

Coffin, D. L.: Sheep erythrocytes for the complement-fixation reaction; operation of unit to obtain sheep cells for complement-fixation test; effect of periodic blood loss upon blood picture of sheep. Am. J. Clin. Path., Tech. Sect., 8 : 103–107, 1944.

16. **Loutit, J. F.; Mollison, P. L.; Young, I. M.:** Citric acid-sodium citrate-glucose mixtures for blood storage; report to Medical Research Council from Southwest London Blood Supply Depot. Quart. J. Exper. Physiol., 32 : 183–202, 1943.

Notice: *Current List of Medical Literature*

he *Current List of Medical Literature,* lished weekly by the Army Medical rary, is designed primarily to serve sons who are interested in medical re- rch. Each week the contents of vari- journals in the medical field are listed subject and journal in the *Current t;* and once a month, a cumulative sub- index provides a ready reference to icles published on particular phases nedical research.

his list is also intended to be an in- m aid to the librarian between appear- es of other indexes of more permanent ue. The subject headings used are se of the *Quarterly Cumulative Index dicus,* to which the reader may refer necessary cross references.

he *Current List of Medical Literature* n intraservice publication of the War Department. It is available to personnel and installations of the Medical Corps and Federal agencies on request. Individual requests from medical officers and other members of Federal health units will be welcomed. Non-Federal municipal, county, and State health units also will be placed on the free mailing list in exchange for any publications issued by such units. Requests should be addressed to the Commandant, Army Medical Library, Seventh Street and Independence Avenue SW., Washington 25, D. C.

Organizations and persons not qualifying for inclusion on the free mailing list may obtain copies through the Superintendent of Documents, United States Government Printing Office, Washington 25, D. C., at 10 cents per single copy or $3.00 per year ($3.75 foreign).

American Venereal Disease Association

he name of the American Neisserian lical Society was changed formally to American Venereal Disease Associa- n, at a business meeting on June 8, 7, at Atlantic City, N. J.

he activities of the American Vene- l Disease Association will now include of the venereal diseases. Members of American Neisserian Medical Society ed 213 to 9 to enlarge its scope to in- le the medical and public health as- ts of all the venereal diseases.

he newly elected officers of the erican Venereal Disease Association : President, Roger W. Barnes, M. D., Angeles, Calif.; vice president, J. R. Heller, Jr., M. D., Washington, D. C.; secretary, William L. Fleming, M. D., Boston, Mass.; and treasurer, Ivan Martin, M. D., of Los Angeles, Calif. The members of the Executive Committee are Stafford L. Warren, M. D., Los Angeles, Calif.; Alfred Cohn, M. D., New York City; and Thomas B. Turner, M. D., Baltimore, Md.

The new officers succeed officers of the American Neisserian Medical Society who were: Honorary president, Edward L. Keyes, M. D.; and honorary president, the late P. S. Pelouze, M. D. Executive Committee: President, Roger Deakin, M. D.; vice president, Roger W. Barnes,

M. D.; secretary, William L. Fleming, M. D.; and treasurer, S. L. Warren, M. D.

It is planned to revise the constitution and bylaws of the American Venereal Disease Association before the next meeting, which is tentatively set for June 1948 in Chicago, Ill.

On June 9, 1947, the following scientific papers were presented before the Association:

Symposium: Gonorrhea in World War II
- L. N. Altshuler, Major, M. C., U. S. Army
- George W. Mast, Commander, M. C., U. S. Navy
- Eugene A. Gillis, Senior Surgeon, U. S. Public Health Service

The Treatment of Gonococcal Infection by Inhalation of Micronized Penicillin: George V. Taplin, M. D.; Howard Thompson, M. D.

Venereal Disease Control in the Postwar Period: J. R. Heller, Jr., Medical Director, U. S. Public Health Service

Present Status of Penicillin in the Treatment of Syphilis: Margaret Merrell, Sc. D.

Discussion: J. E. Moore, M. D.

Ambulatory Treatment of Gonorrhea with Penicillin Preparations: Adolph Jacoby, M. D.; Arthur Ollswan M. D.; Jules Freund, M. D.; The dore Rosenthal, M. D.

Studies on Syphilis in the Easter Health District of Baltimore Cit IV. Syphilis among Parturient W men as an Index of the Trend Syphilis in the Community: Georg M. Leiby, M. D.; Thomas B. Turne M. D.; Robert Dyar, M. D.; Fred Kluth, M. D.

Cross Immunity in Experimental Syp ilis, Yaws and Venereal Spirochet sis: Thomas B. Turner, M. D.; Cha lotte McLeod, Sc. D.; Elaine Updyk Sc. D.

Reinfection in Experimental Syphili R. C. Arnold, Senior Surgeon, U. Public Health Service.

The Treatment of Gonococcal Infectio with Oral Penicillin: Charles M. Ca penter, M. D.; Millard E. Wincheste M. D.; John Tiedemann, M. D.

The Value of Roentgenography of th Male Urethra Following Infectio M. Leopold Brodny, M. D.; Samuel Robins, M. D.

Chronic and Latent Infections Dia nosed and Followed by Cultures 1,000 Consecutive Cases of Gonorrhe Seen Among Office Patients: R. Fran Jones, M. D.

Venereal Disease Division Exhibit

Intense interest on the part of private physicians in current methods of treating the venereal diseases was manifest at the American Medical Association convention, held in Atlantic City, N. J., June 9 to 13. Diagnostic and treatment methods for the venereal diseases, featured in the exhibit, aroused much interest and stimulated many questions and discussions. The exhibit also showed the services available to the private physician from health departments, including referral and consultation, laboratory services, inpatient treatment facilities, confirmatory diagnoses, consultation in treatment reactions, contact investigation, and pos treatment follow-up.

Among the questions which privat physicians asked most frequently wer those dealing with methods of treatmen neurosyphilis, the effects of penicilli therapy on latent and late latent syphili nonspecific urethritis, and prenatal an congenital syphilis.

Thousands of physicians received sc entific literature containing informatio about current diagnostic and rapid trea ment methods, and copies of the Jun issue of the JOURNAL OF VENEREAL DI EASE INFORMATION.

Current Literature

NOTE: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the past 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

. J. SYPH., GONOR. & VEN. DIS., ST. LOUIS

Penicillin therapy in neurosyphilis. Herbert Koteen, Edwin J. Doty, Bruce Webster and Walsh McDermott. 31 : 1–13, Jan. 1947.

omparison of the in vitro antigonococcal actions of penicillins G, F, K, and X. E. Ellen Nell and Justina H. Hill. 31 : 14–19, Jan. 1947.

Streptomycin in experimental chancroid. Franco Mortara and Margaret T. Saito. 31 : 20–26, Jan. 1947.

he rapid treatment of syphilis : comparison of results using five treatment methods. Herbert M. Leavitt. 31 : 27–40, Jan. 1947.

enicillin therapy of early syphilis. Howard L. Holley. 31 : 41–44, Jan. 1947.

The treatment of early syphilis with 600,000 units of penicillin in seven and one-half days. Theodore J. Bauer, Herman N. Bundesen, Robert M. Craig, George X. Schwemlein and Robert L. Barton. 31 : 45–50, Jan. 1947.

Rapid treatment of prenatal syphilis. Sidney Olansky and Robert Beck. 31 : 51–56, Jan. 1947.

he use of pyribenzamine hydrochloride in controlling urticaria due to penicillin. R. H. Kampmeier. 31 : 57–59, Jan. 1947.

cutaneous infection with Neisseria gonorrhoeae with development of lymphangitis resulting from a laboratory accident. H. J. Sears. 31 : 60–64, Jan. 1947.

Evaluation of the Ducrey skin test for chancroid. R. B. Dienst and Seth W. Gilkerson. 31 : 65–68, Jan. 1947.

iagnostic tests in the differential diagnosis of anogenital lesions. Henry Packer and Anna Dean Dulaney. 31 : 69–80, Jan. 1947.

The effect of sulfonamide therapy on the persistence of the virus of lymphogranuloma venereum in buboes. Albert Heyman, Margaret J. Wall and Paul B. Beeson. 31 : 81–86, Jan. 1947.

Penicillin therapy in neurosyphilis. rbert Koteen, Edwin J. Doty, Bruce bster and Walsh McDermott. Am. J. h., Gonor. & Ven. Dis., 31 : 1–13, 1947.

This report deals with the effects of penicillin therapy in a series of 111 patients with neurosyphilis treated at the New York Hospital. All patients have been followed at least 12 months after cessation of treatment, which was by penicillin alone.

Fifty-one patients had asymptomatic neurosyphilis, 41 had tabes dorsalis, 11 had paresis, and 8 had less frequently encountered forms of neurosyphilis. Therapy consisted of purified sodium salt of penicillin in aqueous solution, administered intramuscularly in doses of 25,000 units at 2-hour intervals throughout a period of either 7 or 14 days. In May 1945, the 2,000,000-unit dosage first used was abandoned, and all patients treated subsequent to that time were given 4,000,000 units or more. No change in the clinical status of the 51 patients with asymptomatic neurosyphilis was seen during the 12- to 30-month period of observation but definite changes were observed in the paretics. Many individuals with tabes dorsalis showed clinical changes; of 57 individual symptoms experienced by this group, such as lightning pains, gastric crises, and ataxia, 24 subjective symptoms were uninfluenced by penicillin therapy. In general, no striking improvement was seen in the objective manifestations of tabes dorsalis.

An abnormal number of cells were present in the cerebrospinal fluids of 55 patients at the time of institution of penicillin therapy. A satisfactory response occurred in 6 months in 40 of the 47 patients followed; 1 year after cessation of therapy, all patients who were followed for that period had a normal cell count. Fifty-eight patients had abnormal colloidal gold reactions. These reactions became normal in 23 patients 6 months after treatment, while 18 months posttreatment, the reactions were normal in 16 of the 25 patients followed.

In the entire group of 111 patients, 17 had elevations of temperature of 101° F. or above; in 13 patients the temperature rose on the first day of therapy, while in 4 the reaction occurred subsequently. Two patients with tabes dorsalis died of undetermined causes within 2 weeks of receiving penicillin.

It is concluded that penicillin therapy of neurosyphilis (exclusive of primary optic atrophy) approaches and may equal fever therapy in effectiveness. In cases of asymptomatic neurosyphilis, tabes dorsalis, and the various manifestations of meningovascular syphilis it is believed that a trial of penicillin as the sole antisyphilitic agent is justified.

Streptomycin in experimental chancroid. Franco Mortara and Margaret T. Saito. Am. J. Syph., Gonor. & Ven. Dis., 31: 20–26, 1947.

Following the finding that Hemophilus ducreyi was remarkably sensitive to streptomycin hydrochloride in vitro, the value of streptomycin in experimental chancroid in the rabbit was investigated.

Rabbits weighing between 2.5 and 3.5 kilograms were inoculated intradermally in shaved areas on the sides with 0.2 ml. of a 24-hour culture of H. ducreyi in defibrinated rabbit blood. Streptomycin was dissolved in sterile distilled water and administered intramuscularly in various amounts and at different time intervals both before and after inoculations.

In two experiments, in which streptomycin was started before inoculation with H. ducreyi, one rabbit received 25,000 units 1 hour before inoculation and equal amounts 2 to 5 hours thereafter. The other rabbit was given 50,000 units 1 hour before inoculation and the same amount after 3 and again after 20 hours. Forty-eight hours after inoculation the animals showed pustules about 10 mm. in diameter surrounded by erythema.

Nine rabbits were given streptomycin after inoculation. Seven received 150,000
units divided into 3 equal doses of 50,
units each, an amount within the the
peutic range for man. The other t
received single doses of 25,000 and 50,
units administered 7½ hours after ino
lation.

The results showed that the devel
ment of experimental chancroid lesi
was prevented by 150,000 units of str
tomycin given intramuscularly in 3 eq
doses within 24 hours, when treatm
was started 1 hour before or from 1 t
hours after inoculation.

It is therefore recommended by the
thors that a clinical trial of streptomy
be made in the treatment of patients w
chancroid who are sulfonamide-sensiti

**The treatment of early syphilis w
600,000 units of penicillin in seven
one-half days.** Theodore J. Bauer, H
man N. Bundesen, Robert M. Cr
George X. Schwemlein and Robert
Barton. Am. J. Syph., Gonor. & Ven. D
31: 45–50, 1947.

The authors report on a schedule
treatment which was found to be unsa
factory in early syphilis due to the la
number of failures and relapses enco
tered. This report is based on the tre
ment of 339 patients with darkfield p
tive lesions within the period January
1944, through July 26, 1944, at the C
cago Intensive Treatment Center.

Each patient received 10,000 Oxf
units of sodium penicillin in aqueous
lution intramuscularly every 3 hours
60 doses over 7½ days, a total of 600,
units. All patients were observed o
a period of 18 months. Two hundred
eighty-five patients were previously
treated for syphilis; the remaining 54
received arsenic and bismuth, sub
quently exhibiting clinical and laborat
manifestations of relapse or failure
become darkfield negative.

This therapy caused prompt disappe
ance of surface spirochetes and ra
healing of the lesions. One hundred
fifty-eight (52.1 percent) of the 303 se
positive patients achieved seronegativ
posttreatment; 23 (14.5 percent) of th
relapsed, however. The average num

ys required for seroreversal of pa- with primary syphilis was esti- l at 108.3; for those with secondary lis, 120.4 days; and for those who sed after previous treatment, 166.3

ety-seven patients (28.6 percent) of otal 339 patients treated were con- ed treatment failures. There were sible reinfections, details of which given. Because of these results, fore, the authors consider this of penicillin therapy to be inade- for early syphilis.

pid treatment of prenatal syphilis. y Olansky and Robert Beck. Am. J. ., Gonor. & Ven. Dis., 31: 51–56, 1947.

e authors discuss a study in which types of intensive antisyphilitic py were administered to 147 preg- women at the Rapid Treatment er in Washington, D. C.

enty-four patients were treated with ule I, which consisted of 5-day intra- ns arsenotherapy plus bismuth sub- late in oil. Twenty-four patients treated with schedule II, or 40,000 of sodium penicillin administered muscularly every 3 hours for 63 tions. Forty-nine patients were ed with schedule III, which combined illin, arsenic, and bismuth, on an 3" plan and a "5-12-3" plan, de- ed by the authors.

ong the patients observed under ule I, there were 59 live births, 4 irths, and 3 abortions. Under sched- I, there were 19 live births, 1 still- , and 1 abortion, while under sched- II, there occurred 1 abortion, 1 still- , and 44 live births among the pa- s the outcome of whose pregnancies known.

the group receiving intensive arseno- py, 1 case of fatal arsenic encephal- y was noted, whereas in the penicil- eated group and in the group receiv- combined therapy there were no vard reactions.

sults of this study show that the ence of abortions, stillbirths, and ature births is no greater in this group than in a similar nonsyphilitic group. The infants were studied clinically and serologically for 3 months or longer, but to date only one of them is known to be infected.

Evaluation of the Ducrey skin test for chancroid. R. B. Dienst and Seth W. Gilkerson. Am. J. Syph., Gonor. & Ven. Dis., 31: 65–68, 1947.

The authors describe the procedure used on 116 patients with early penile lesions to establish the etiology of chancroid.

Syphilis was first excluded by three negative darkfield examinations made over a period of 3 days. Two smears from the lesion were then taken—one to be stained by Gram's method; the second, by Barritt's modification of Pappenheim's stain. Cultures were also taken for the observation of Ducrey-like organisms, while skin tests were made by inoculation with Frei and Ducrey antigens. Direct smears from lesions were finally stained by Wright's blood stain and examined for Donovan bodies.

No lesions examined revealed Donovan bodies. Observations on films and cultures for Ducrey-like organisms showed that the etiologic agent for 37.6 percent of the penile lesions clinically diagnosed as chancroid could not be accurately determined by laboratory methods. Nearly one-half the patients with penile lesions did not react to either the Frei or Ducrey antigen in the skin test. Ducrey skin tests were negative in 33 patients even though Ducrey-like organisms were demonstrated in the lesions by films and culture. Despite the usual belief, it was observed in this study that no individual had become sensitized to an intradermal inoculation of Ducrey antigen unless there was considerable involvement of the regional lymphatics.

Since the first series of skin tests showed that Ducrey antigen was of little value in diagnosis of chancroid unaccompanied by regional adenopathy, 207 additional patients with penile lesions were tested with the Ducrey and Frei antigens. As in the first group of 116 patients, nearly one-half these patients clinically diagnosed as chancroid were nonreactors to the Ducrey antigen. Patients with buboes invariably reacted to one or both antigens, results showing that 98 percent of the buboes were apparently the result of infection with Hemophilus ducreyi or the virus of lymphogranuloma venereum. The skin tests aided in a differential diagnosis of 93 percent of patients with lymphadenopathy.

It is therefore stressed by the authors that both the Ducrey and Frei antigens must be used, both antigens being injected at the same time.

The effect of sulfonamide therapy on the persistence of the virus of lymphogranuloma venereum in buboes. Albert Heyman, Margaret J. Wall and Paul B. Beeson. Am. J. Syph., Gonor. & Ven. Dis., 31: 81–86, 1947.

This report presents an investigation on the persistence of the virus of lymphogranuloma venereum in the buboes of 9 patients treated with sulfathiazole and 3 untreated patients.

Bubo pus or saline aspirations of the bubo were obtained from each patient and the virus of lymphogranuloma venereum recovered and identified. Sulfathiazole in doses of 4 gm. a day was given soon after the initial visit, patients being instructed to return at weekly intervals for further treatment as clinically indicated. In general, each patient received from 40 to 60 gm. of sulfathiazole before clinical symptoms subsided. Material from the buboes of the untreated patients was taken at intervals of 2 to 3 weeks.

The virus was isolated from 2 of 3 untreated patients for as long as 95 days after onset of the disease; lymph nodes which persisted after healing of the buboes produced the virus for about 3 months. The third untreated patient showed rapid regression of the bubo and the virus could not be obtained after the initial isolation.

In the treated patients, the virus could not be recovered after sulfathiazole had been taken for 2 to 3 weeks. Tests were generally negative with material obtained from completely healed buboes, but evidence that the virus may remain in lymph node for months was obtained case, the details of which are given. this patient, the virus was isolated f an excised lymph node 6 months after onset of clinical symptoms and 4 mo after he had been treated with 120 of sulfathiazole.

ARCH. OPHTH., CHICAGO

*Syphilitic uveitis. Diagnosis, Herxhe reaction and results of various t ments, including penicillin therapy. seph V. Klauder and George J. Du 35: 384–399, Apr. 1946.

Syphilitic uveitis. Diagnosis, H heimer reaction and results of var treatments, including penicillin ther Joseph V. Klauder and George J. Dul Arch. Ophth., 35: 384–399, 1946.

The authors report on a study o patients (42 males and 30 females) Negroes and 22 whites with syphi uveitis. They were between 21 and years of age. The 72 patients w divided into three groups: (1) 53 pati with other lesions (diagnostic) of ondary or late secondary syphilis, (2) patients with iridorecidivism, and (patients with positive Wassermann r tions, but no clinical (diagnostic) dence of syphilis.

In the majority of patients recei chemotherapy, disappearance of ac signs of inflammation, as evaluated examination with the slit lamp, occur in from 2 to 5 weeks and (in exceptic cases) in 5 to 7 weeks. The authors st that they see no advantage in fe therapy of syphilitic uveitis except initiate treatment of severe processes.

Seventeen patients with uveitis a ciated with late secondary syphilis w treated exclusively with sodium peni lin injected intramuscularly every hours, the total dosage of 2,400,000 u being administered in 8 days. Penici exerted a prompt effect on the ocular sion; inflammation disappeared in fi 8 to 14 days after the first injection all but 2 patients, for whom the lat period was exceeded. No recurrence ocular inflammation has been obser patients are still under observation; maximum period of observation has 15 months. Serologic reactions have me, or are becoming, negative. There een one cutaneous relapse of syphilis, onths after treatment.

the authors' experience, the nonspe- effect of antisyphilitic treatment is uniform. Injections of an arsenical or a bismuth preparation may in an sional patient cause disappearance nflammation of the anterior uveal in a manner comparable to the spe- effect of such treatment. The non- fic effect, however, is not always ng.

e authors state that the Wassermann ion, the Herxheimer reaction, and herapeutic response to antisyphilitic ment are not infallible criteria in liagnosis of syphilitic uveitis. Since ect diagnosis cannot be made clin- and histologic examination or dem- ation of T. pallidum is not possible, nosis is essentially made by a positive hing or a negative excluding process. believe the three most important ria are: (1) demonstration of, or ence pointing to, an early stage of the ilitic infection; (2) an inflammatory ess of such character as to exclude as s is possible other etiologic factors; prompt effect of antisyphilitic treat- .

e illustrative case reports are pre- d in conjunction with the article. uent references to the literature are .

J. VEN. DIS., LONDON

enical encephalopathy. A review of the iterature with a report of a further 187 ases. Ernest E. Prebble. 22: 93–101, ept. 1946; 139–149, Dec. 1946.

nificance of the blood Wassermann re- ction after malaria therapy in general aralysis. Brian H. Kirman. 22: 168– 71, Dec. 1946.

management and treatment of the late nd latent syphilitic. G. L. M. McEl- gott. 22: 171–182, Dec. 1946.

M. J., LONDON

idence of yaws and of venereal diseases Lango (Uganda). C. J. Hackett. No. 489: 88–90, Jan. 18, 1947.

BULL. ACAD. MED. CLEVELAND, CLEVELAND

Streptomycin. Robert F. Parker. 32: 8–9, Apr. 1947.

GEORGIA'S HEALTH, HAPEVILLE

VD–TB survey. 27: 1, Apr. 1947.

HEALTH NEWS, ALBANY

Farm labor camp improvements cited in report to Governor Dewey. (Venereal disease control). 24: 47–48, Mar. 24, 1947.

INDUST. NURSING, CHICAGO

Venereal disease. What stake has industry in its control? 5: 30–32, Dec. 1946.

J. A. M. A., CHICAGO

History of the American Medical Association. Morris Fishbein. 132: Nov. 16–Dec. 28, 1946; 133: Jan. 4–Mar. 29, 1947.

*Treatment of early syphilis with calcium penicillin-oil-beeswax. Monroe J. Romansky and Charles R. Rein. 132: 847–851, Dec. 7, 1946.

Streptomycin for urinary tract infections. John D. Adcock and Robert T. Plumb. 133: 579–584, Mar. 1, 1947.

Bacitracin therapy. The first hundred cases of surgical infections treated locally with the antibiotic. Frank L. Meleney and Balbina Johnson. 133: 675–680, Mar. 8, 1947.

Infectious granulomatous lesions of the cervix. William F. Guerriero, R. Jennett and W. B. Mantooth. 133: 832–835, Mar. 22, 1947.

Treatment of early syphilis with calcium penicillin-oil-beeswax. Monroe J. Romansky and Charles R. Rein. J. A. M. A., 132: 847–851, 1946.

The authors report on an ambulatory method for the treatment of early syphilis wherein a single daily intramuscular injection of 300,000 units of calcium penicillin in 4.8 percent beeswax in peanut oil contained in 1 cc. is administered for 8 days.

Since the initiation of the study in August 1944, 75 patients have been treated, of whom 56 had primary syphilis and 19 had secondary syphilis. Of the first 14 patients treated, 2 received 100,000 units 3 times a day, 2 received 150,000 units twice a day, and 10 were given 300,000 units in 2 or 3 cc. once a day. The remaining 61 patients in the group received 300,000 units in 1 cc., the total number of Oxford units for all patients being 2,400,000.

Blood was obtained at 30-minute and 4-hour intervals for 24 hours for the determination of penicillin levels, patients being observed for a minimum of 15 days. Penicillin was found to be in the blood for a total period of 14 days. Lesions were rendered darkfield negative in 10 to 36 hours after the initial injections of penicillin in beeswax and peanut oil; both primary and secondary lesions were healed in 3 to 12 days. In 39 percent of the patients some degree of Herxheimer reaction developed, while 10 percent also had a concomitant cutaneous reaction.

Of the 75 patients treated, 15 could not be followed clinically or serologically for a sufficient length of time to be evaluated. Forty of the remaining 60 patients attained and maintained seronegativity for the period of follow-up, while an additional 18 showed satisfactory progress at the time of the last serologic examination. There were therefore 58 satisfactory responses and 2 failures in this study.

J. AM. PHARM. A. (SCIENT. ED.), WASHINGTON

The effect of serum and organ emulsions on penicillin fractions. W. A. Randall, Henry Welch and C. W. Price. 36 : 17–19, Jan. 1947.

The urinary excretion of penicillins G and K in rabbits. C. W. Price, W. A. Randall and Henry Welch. 36 : 19–22, Jan. 1947.

The effect of renal ligation on serum penicillin levels produced by penicillins G and K in rabbits. Henry Welch, C. W. Price and W. A. Randall. 36 : 23–25, Jan. 1947.

J. INDIANA M. A., INDIANAPOLIS

Survey of the treatment of syphilis. John Eric Dalton. 40 : 221–223, Mar. 1947.

Treatment of gonorrhea in the male with penicillin. Robert D. Howell. 40 : 225–228, Mar. 1947.

Indiana State Board of Health announces new serologic report card. Special articles. 40 : 249, Mar. 1947.

J. NAT. M. A., NEW YORK

Antibiotic agents and some general principles of antibiotic therapy. Original communications. C. W. Buggs. 39 : 45–57, Mar. 1947.

J. NERV. & MENT. DIS., NEW YORK

Syphilitic meningitis with negative blood and spinal fluid serology. Report of a rare syndrome. Lawrence I. Kaplan, Hilton S. Read and Frederick T. Becker. 104 : 200–206, Aug. 1946.

J. NEUROPATH. & EXPER. NEUROL., BAI
MORE

Syphilitic amyotrophy. Clinical-pathol cal report of a case complicating ta dorsalis. Ben W. Lichtenstein and seph A. Luhan. 5 : 321–332, Oct. 19

J. OKLAHOMA M. A., OKLAHOMA CITY

Institutional treatment of syphilis. A. Colyar. 40 : 44–45, Feb. 1947.

Sulfonamide anuria. (Occurring in tr ment of g. c.) D. W. Branham. 40 : 81- Mar. 1947.

J. ROY. ARMY M. CORPS., LONDON

Hygiene problems of the campaign in No West Europe—1944–45. A review. cluding v. d.) M. Hunter. 88 : 1–21, J 1947.

J. ROY. NAV. M. SERV., LONDON

Freetown memories. (Including vene diseases and yaws in West Africa.) H Darlow. 32 : 263–269, Oct. 1946.

Return to Singapore. (Including vene disease control.) E. J. Mockler. 272–284, Oct. 1946.

J. UROL., BALTIMORE

The present status of streptomycin ther Sam L. Raines. 57 : 79–83, Jan. 1947

Clinical observations on the nature of genital gonorrhea. John H. Doughe Carl S. Lilucia, Angelo DiDonna and J C. Riddler. 57 : 84–93, Jan. 1947.

JOURNAL–LANCET, MINNEAPOLIS

New advance in penicillin therapy. (E gen as injection vehicle.) 67 : 84, 1947.

KENTUCKY M. J., BOWLING GREEN

Prevention of blindness. (Due to v. 45 : 59, Mar. 1947.

LANCET, LONDON

Gonorrhea in the female. Diagnosis treatment. Ambrose J. King and Gallagher. 1 : 916–919, June 22, 194

*Survival of penicillin-sensitive organ in dried penicillin. H. Proom. 1 : 11 July 6, 1946.

Survival of penicillin-sensitive org isms in dried penicillin. H. Pro Lancet, 1: 11–12, 1946

In this article the author describes s experiments designed to show whe dried sensitive organisms will surviv contact with commercial dried penic and whether under any conditions mixture when dissolved and injected enterally can infect animals.

om these experiments, he concludes
dried pathogenic penicillin-sensitive
nisms may remain viable for a con-
able period—at least 10 weeks—in
ict with commercial dried penicillin.
urther concludes that under certain
itions, these mixtures when dissolved
injected into animals may cause a
infection. In this particular case
the solution had been allowed to
l for a short time the mixture was
nger infective, but other pathogenic
es or strains more resistant to peni-
may remain viable for longer pe-
s.

e author states that in practice the
of infection from contaminated dried
illin is small, but it is sufficient to
it advisable to test the sterility of
l penicillin before use. Also, it is
ly necessary for the clinician to use
same aseptic precautions for dried
cillin as for any other substance for
nteral injection.

table is presented which shows the
t of injecting a solution of dried peni-
and culture intravenously into rab-

NN. DISTRICT OF COLUMBIA, WASHINGTON

- e treatment of gonorrhea with streptomycin. A preliminary report with cure of four cases. Lawrence E. Putnam, Robert P. Herwick, S. Ross Taggart and Ben D. Chinn. 16 : 14, 55, Jan. 1947.
- cent advances in pediatrics. (Including v. d.) Sidney Ross and Joseph S. Wall. 16 : 57–75, 118, Feb. 1947.
- e future of venereal disease control. (Reprint in V. D. Div.) Eugene A. Gillis. 16 : 76–80, Feb. 1947.

FFICER, LONDON

- servations on venereal disease. V. O. B. Gartside. 76 : 205–206, Nov. 9, 1946.
- me health data in Brunswick, April 1945–April 1946. E. H. R. Smithard. 76 : 281–287. Dec. 28, 1946.
- tendances at V. D. clinics. 77 : 117, Mar. 29, 1947.

RESS, LONDON

- e modern treatment of gonorrhea. A. J. King. No. 5572 : 120–122, Feb. 20, 1946.

M. REC., KUTZTOWN

- Leucorrhea. A diagnostic aid. (Including gonorrhea.) David Lazarus and Ely Elliott Lazarus. 159 : 672–674, Nov. 1946.
- New white crystalline penicillin. 159 : 742, Dec. 1946.
- Lymphogranuloma venereum. Aaron Dubnove. 160 : 26–29, 38, Jan. 1947.

M. WOMAN'S J., CINCINNATI

- Gynecological problems of college women. (Including gonorrhea.) Nora Winther. 53 : 21–26, 52, Nov. 1946.

M. WORLD, NEW YORK

- Syphilitic pregnancies. Herman Beerman and Norman R. Ingraham, Jr. 64 : 394, Sept. 1946.
- Paresis treated with penicillin. W. R. Rosanoff and J. K. Norman. 64 : 426–427, Sept. 1946.
- Congenital syphilis. 64 : 429–430, Sept. 1946.

MARYLAND HEALTH BULL., BALTIMORE

- Maryland's health during the year 1946. (Venereal disease incidence). 18 : 97–104, Feb. 1947.

MICHIGAN PUB. HEALTH, LANSING

- Has Michigan failed in venereal disease control? John A. Cowan. 34 : 210–212, Nov. 1946.

MIL. SURGEON, WASHINGTON

- Health problems in transition period. (Including v. d.) James A. Crabtree. 99 : 754–758, Dec. 1946.
- Venereal control council established. Association Notes. 100 : 193, Feb. 1947.

MINNESOTA'S HEALTH, MINNEAPOLIS

- Work of laboratories increases. (Including v. d.) 1 : 2–3, Mar. 1947.

MISSISSIPPI DOCTOR, BOONEVILLE

- A postwar program for the control of venereal disease. Felix J. Underwood. 24 : 135–138, Oct. 1946.
- False positive serologic tests for syphilis in non-syphilitic individuals. Paul G. Reque. 24 : 177–179, Dec. 1946.

MOD. MED., MINNEAPOLIS

- Syphilis tests. Correspondence. Robert D. Barnard. 15 : 14, 16, 18, Jan. 1947.
- Health of displaced persons. Army occupation authorities keep disease rates at a minimum. (Including v. d.) 15 : 94, Feb. 1, 1947.

NEBRASKA M. J., LINCOLN

- Syphilis and penicillin therapy. Arthur C. Curtis. 31 : 402–405, Oct. 1946.
- Venereal disease control in a rural area.

Walter B. Quisenberry and James N. Dudley. 31 : 456–459, Nov. 1946.

New England J. Med., Boston

Problems arising in the treatment of syphilis with penicillin. William R. Hill. 235 : 919–924, Dec. 26, 1946.

Acute appendicitis occurring during the course of other diseases. (Occurring with syphilis.) Elliott S. Hurwitt. 236 : 20–23, Jan. 2, 1947.

Syphilis. Medical progress. G. Marshall Crawford. 236 : 243–250, Feb. 13, 1947 ; 280–288, Feb. 20, 1947.

Penicillin in the treatment of gonorrhea in women. Results of treatment as reported by twelve cooperating venereal disease clinics in Massachusetts during 1945. George E. Perkins and Harold N. Brewster. 236 : 277–280, Feb. 20, 1947.

A comparative study of penicillins X and G and crystalline penicillin G. Georgine Rotman-Kavka, Harold L. Hirsh and Harry F. Dowling. 236 : 314–318, Feb. 27, 1947.

Arthritis in the Mediterranean theater of operations. III. Clinical description of infectious and other types of arthritis. Including gonococcal arthritis.) Charles L. Short. 236 : 468–473, Mar. 27, 1947.

New Orleans M. & S. J., New Orleans

Biologically false-positive Wassermann tests in non-syphilitic patients. A. Lane Miller. 99 : 335–346, Jan. 1947.

New York State J. Med., New York

Syphilis in Army separatees. Theodore Rosenthal and Nathan Sobel. 46 : 2042–2045, Sept. 15, 1946.

The treatment of experimental syphilis with penicillin. Charles M. Carpenter, Ruth A. Boak and Lois M. Jacobs. 46 : 2150–2153, Oct. 1, 1946.

Effect of injury and effort on the normal and the diseased heart. (Syphilitic changes.) Arthur M. Master. 46 : 2634–2641, Dec. 1, 1946.

The treatment of syphilis. (Conferences on therapy.) 46 : 2651–2656, Dec. 1, 1946 ; 2760–2765, Dec. 15, 1946.

Nord. Med., Stockholm

Behandlingen av lues congenita. (Treatment of lues congenita.) O. Enkvist. 31 : 1613–1615, July 26, 1946. (Abstracted in Bull. Hyg., London, 21 : 736–737, Nov. 1946.)

Nova Scotia M. Bull., Halifax

Teaching venereal disease to medical students. B. D. B. Layton. 25 : 327–332, Oct. 1946.

Von Jaksch's syndrome in congenital syphilis. H. C. Read and G. M. Moffatt. 26 : 47–50, Feb. 1947.

Ohio State M. J., Columbus

Are mass presumptive serologic surveys tified by the present statuses of serod nostic tests and of syphilis? Robert Barnard. 43 : 249–263, Mar. 1947.

Oklahoma Health Bull., Oklahc City

Arkansas plans blood test law. 5 : 7, 1 1947.

Oregon Health Bull., Portland

Changing venereal disease control aspe Gordon C. Edwards. 25 : 3–4, Jan. 1947 ; 25 : 3, Jan. 15, 1947.

44 laboratories receive approval. 25 Feb. 19, 1947.

Proc. Inst. Med. Chicago, Chicago

Some obscure and paradoxical problems syphilis. Udo J. Wile. 16 : 246–2 Nov. 1946.

Proc. New York State Assoc. P Health Labs., New York

The diagnosis and management of syphi Evan W. Thomas. 26 : 32–42, 1946.

Proc. Soc. Exper. Biol. & Med., Utica

*Streptomycin in the therapy of granulc inguinale. Robert B. Greenblatt, H bert S. Kupperman and Robert B. Die 64 : 389–390, Apr. 1947.

Streptomycin in the therapy of gra loma inguinale. Robert B. Greenbl Herbert S. Kupperman and Robert Dienst. Proc. Soc. Exper. Biol. & Me 64 : 389–390, 1947

Streptomycin has proved strikingly fective in the therapy of granuloma guinale. A total of 23 patients w treated. The diagnosis of the dise was established in all cases by dem strating the presence of Donovan bod in either spreads made from the lesion by histologic study of biopsy sectio No other form of treatment was ins gated. The daily dose employed rang from 0.3 to 1 gm. administered in equal divided doses per 24 hours at hour intervals. Total dosage varied fr 3.3 to 46 gm. given over a period of ti extending from 6 to 46 days. The tients to whom the drug was administer were divided into three groups: (1) treated patients; (2) chronic cases ina equately treated over a period of year (3) patients who had relapsed after ısive course of fuadin or anthiome therapy. Daily smears made lesions after streptomycin injections ed that Donovan bodies could not be ınstrated 5 to 9 days after administon of the antibiotic. Healing fold a general pattern and was usually ipetal in effect. Relapses occurred of the 23 patients treated. Two of received less than 4 gm. while the received 28 gm. of the drug.

Health News, Trenton

r in review. (Advances in venereal disase control.) J. Lynn Mahaffey. 28: 95–199, Feb. 1947.

ıereal disease control services for migrant vorkers. Tri-county area—Monmouth, Iiddlesex and Mercer counties—1946. Ienry Cowan. 28: 201–204, Feb. 1947.

ırny health officer invokes v. d. law. 28: 04, Feb. 1947.

en years of premarital and prenatal xaminations. 28: 210, Feb. 1947.

r. Bull., Dept. of Health, New York

cialists will lecture in VD seminar for hysicians. 14: 51–52, Dec. 1946.

ıses of delay in serological reports. 14: 3, Dec. 1946.

erpretation of serological reports. 14: 4–56, Dec. 1946.

of penicillin restricted. 14: 57, Dec. 946.

ce, Lancaster

inal absorption of penicillin. John Rock, obert H. Barker and W. Benjamin Bacon. 05: 13, Jan. 3, 1947.

ctivation of penicillins G and K by liver nd kidney. Jay Tepperman, N. Rakieten, . Valley and Edna W. Lyon. 105: 18–19, an. 3, 1947.

concept of competitive inhibition of ıe renal tubular excretion of penicillin. arl H. Beyer. 105: 94–95, Jan. 24, 1947.

ı. Med. & Surg., Charlotte

problem of doubtful serologic tests for philis. J. L. Callaway. 109: 42–43, eb. 1947.

Navy Med., Washington

ereal diseases. Current Morbidity. 2: –23, May 1946.

Statist. Bull. Metrop. Life Insur. Co., New York

Death and the Negro. (Including syphilis.) 28: 7–9, Mar. 1947.

Surg. Gynec. & Obst., Chicago

The excretion and concentration of penicillin and streptomycin in the abnormal human biliary tract: II. Hepatic bile. Jerry Zaslow, Virgil S. Counseller and Fordyce R. Heilman. 84: 140–152, Feb. 1947.

U. S. Nav. M. Bull., Washington

Charcot-like joints in yaws. Frank H. Smith. 46: 1832–1843, Dec. 1946.

Yaws treated with penicillin. Clinical notes. William D. Stubenbord. 46: 1895–1898, Dec. 1946.

Pericarditis during penicillin treatment for syphilis. Hugh G. Whitehead, Jr. 47: 141–150, Jan.–Feb. 1947.

Lymphogranuloma venereum. Report of a case treated with penicillin and sulfadiazine. Moses J. Entin and Robert D. Boles. 47: 157–159, Jan.–Feb. 1947.

Toxic effects of arsenical compounds. As employed in the treatment of syphilis in the United States Navy, 1945. Otto L. Burton, George W. Justyn and Laura T. Anderson. 47: 180–197, Jan.–Feb. 1947.

Incidence of venereal disease in separatees examined at the U. S. Naval Personnel Separation Center, Jacksonville, Fla. Lester D. Bibler and William H. Goley. 47: 207, Jan.–Feb. 1947.

Ven. Dis. Briefs, Ohio Dept. of Health, Columbus

Ohio's control program and the decrease in syphilitic psychoses and congenital infections. 1: 1, Apr. 1947.

Virginia M. Monthly, Richmond

Persistently sero-positive reaction for syphilis in chronic brucellosis. Conrad L. Gossels. 74: 82–83, Feb. 1947.

Venereal Disease Control Committee. 74: 183, Apr. 1947.

Wisconsin M. J., Madison

Medical aspects of marriage laws. 66: 100–101, Jan. 1947.

State Board of Health, services, laws, and rulings. (Including v. d.) 66: 121–125, Jan. 1947.

Syphilis and Gonorrhea Cases Reported for the First Time in States and Territories, First and Second Quarters Fiscal 1947

[Grouped by Public Health Service Districts]

Area	Syphilis															Gonorrhea 1946		
	Primary and secondary			Early latent			Late and late latent			Congenital			Not stated					
	1946			1946			1946			1946			1946					
	July-September	October-December	Trend ratio	July-September	October-December	Trend ratio	July-September	October-December	Trend ratio	July-September	October-December	Trend ratio	July-September	October-December	Trend ratio	July-September	October-December	Trend ratio
District 1—Total [a]	4,580	4,121	0.90	4,580	4,497	0.94	7,966	7,299	0.94	528	476	0.90	471	525	1.11	12,867	11,791	0.92
Connecticut	107	130	1.21	144	175	1.22	216	323	1.50	15	20	(b)	58	59	1.02	437	363	.83
Delaware	102	92	.90	89	74	.83	58	36	.62	3	7	(b)	22	20	.91	88	81	.92
Maine	116	118	1.02	26	30	1.15	51	94	1.84	8	5	(b)	3	1	(b)	249	191	.77
Massachusetts	395	293	.74	--------	177	(c)	669	409	(c)	62	41	.66	0	0	(b)	1,198	1,033	.86
New Hampshire	28	22	.78	10	16	(b)	32	45	1.41	7	2	(b)	1	3	(b)	123	103	.84
New Jersey	569	523	.92	1,020	786	.77	1,086	1,019	.94	69	50	.72	14	18	(b)	2,025	1,649	.81
New York	2,083	1,935	.93	1,787	1,893	1.06	3,940	4,125	1.05	183	211	1.15	147	176	1.20	[d] 6,424	[d] 6,128	.95
New York City	1,550	1,465	.94	1,498	1,625	1.08	2,634	2,863	1.09	110	142	1.29	43	68	1.58	6,210	5,951	.96
Pennsylvania	1,062	902	.85	1,473	1,297	.88	1,792	1,125	.63	169	127	.75	177	202	1.14	[e] 1,864	[e] 1,893	1.02
Philadelphia [f]	356	494	1.39	788	906	1.15	785	687	.88	35	49	1.40	106	145	1.37	1,323	1,796	1.36
Pittsburgh [f]	125	344	2.75	124	189	1.52	184	157	.85	28	31	1.11	0	0	(b)	246	439	1.78
Rhode Island	72	70	.97	26	38	1.46	108	116	1.07	9	5	(b)	49	46	.94	315	199	.63
Vermont	46	36	.78	5	11	(b)	14	7	(b)	3	8	(b)	0	0	(b)	144	151	1.05
District 2—Total	4,532	5,115	1.13	3,727	4,051	1.09	2,530	2,935	1.16	335	410	1.22	456	420	.92	16,073	16,396	1.02
District of Columbia	462	467	1.01	440	392	.89	209	231	1.10	21	13	.62	13	4	(b)	2,685	3,399	1.26
Maryland	636	551	.87	355	363	1.02	400	431	1.08	33	40	1.21	425	397	.93	1,610	1,348	.84
Baltimore	527	457	.87	281	309	1.10	326	375	1.15	15	21	(b)	152	75	.49	1,111	929	.84
North Carolina	1,172	1,042	.89	741	719	.97	245	317	1.29	110	101	.92	0	0	(b)	3,827	3,251	.85
South Carolina	257	793	3.08	481	851	1.77	273	526	1.93	20	65	3.25	4	0	(b)	1,960	3,096	1.58
Virginia	1,084	935	.86	1,101	979	.89	787	711	.90	84	77	.92	14	19	(b)	4,222	3,506	.83
West Virginia	921	1,327	1.44	609	747	1.23	616	719	1.17	67	114	1.70	0	0	(b)	1,769	1,796	1.02
District 3—Total	5,611	5,353	.95	4,840	4,585	.95	6,429	6,498	1.01	511	521	1.02	1,315	801	.61	18,820	18,745	1.00
Illinois	1,675	1,539	.92	1,647	1,611	.98	2,227	2,250	1.01	138	170	1.23	0	0	(b)	10,043	8,961	.89
Chicago	1,061	968	.91	1,234	1,071	.87	1,407	1,325	.94	88	96	1.09	0	0	(b)	8,235	7,212	.88
Indiana	471	562	1.19	306	316	1.03	505	628	1.24	46	60	1.30	348	250	.72	496	489	.98
Kentucky	621	724	1.16	413	463	1.12	240	237	.99	47	29	.62	93	47	.50	2,058	3,769	1.83
Michigan	1,152	1,144	.99	1,122	1,056	.94	1,524	1,763	1.16	127	123	.97	822	479	.58	3,155	2,846	.90
Ohio	1,495	1,186	.79	1,231	1,048	.85	1,644	1,388	.84	142	130	.92	0	0	(b)	2,650	2,334	.88
Wisconsin	197	198	1.00	121	91	.75	289	232	.80	11	9	(b)	52	25	.48	418	346	.83

Tennessee	1,140	956	.84	1,110	1,050	.94	803	682	.85	81	67	.83	14	6	(b)	7,274	6,579	.90
District 5—Total	2,267	1,986	.88	2,336	1,805	.77	3,657	3,096	.85	251	250	1.00	270	254	.94	12,549	10,632	.85
Alaska	25	11	.44	4	10	(b)	2	2	(b)	1	0	(b)	0	1	(b)	259	206	.80
Arizona	141	150	1.06	96	89	.93	98	87	.89	13	13	(b)	0	0	(b)	425	343	.81
California	1,763	1,417	.80	2,051	1,502	.73	3,082	2,337	.76	186	162	.87	178	150	.84	9,656	8,299	.86
Hawaii	13	31	(b)	22	40	1.82	83	297	3.58	11	37	(b)	0	16	(b)	210	142	.68
Nevada	20	48	2.40	0	3	(b)	79	58	.73	12	5	(b)	24	15	.62	92	138	1.50
Oregon	116	174	1.50	42	55	1.31	143	128	.90	14	15	(b)	29	48	1.66	657	474	.72
Washington	189	155	.82	121	106	.88	170	187	1.10	14	18	(b)	39	24	.62	1,250	1,030	.82
District 6—Total	270	191	.70	820	626	.76	416	240	.58	409	383	.94	3	0	(b)	1,566	1,382	.87
Puerto Rico	269	188	.70	798	602	.75	413	238	.58	408	383	.94	3	0	(b)	1,535	1,319	.86
Virgin Islands	1	3	(b)	22	24	1.09	3	2	(b)	1	0	(b)	0	0	(b)	31	63	2.03
District 7—Total	1,600	1,499	.94	1,382	1,450	1.05	1,594	1,641	1.03	166	197	1.19	293	256	.87	4,591	3,904	.85
Iowa	156	147	.94	136	119	.88	109	56	.51	6	16	(b)	20	30	1.50	484	349	.72
Kansas	184	182	.99	158	175	1.11	246	283	1.15	27	48	1.78	39	13	.33	705	680	.96
Minnesota	180	184	1.02	69	69	1.00	146	172	1.18	16	16	(b)	22	17	.77	534	530	.99
Missouri	847	821	.97	796	943	1.18	744	928	1.25	83	92	1.11	68	97	1.43	2,085	1,846	.88
St. Louis [f]	603	616	1.02	600	773	1.29	435	727	1.67	57	69	1.21	0	0	(b)	1,380	1,218	.88
Nebraska	120	102	.85	175	111	.63	273	147	.54	27	19	.70	125	87	.70	435	285	.66
North Dakota	54	28	.52	14	10	(b)	14	19	(b)	1	1	(b)	17	11	(b)	179	82	.46
South Dakota	59	35	.59	34	23	.68	62	36	.58	6	5	(b)	2	1	(b)	169	132	.78
District 8—Total	408	308	.75	291	226	.78	339	317	.94	35	31	.88	41	63	1.54	1,213	893	.74
Colorado	244	161	.66	172	114	.66	212	168	.79	24	19	.79	0	0	(b)	730	486	.66
Idaho	62	63	1.02	54	48	.89	38	53	1.39	6	3	(b)	18	12	(b)	190	172	.90
Montana	36	24	.67	14	26	(b)	13	12	(b)	1	3	(b)	16	45	(b)	71	76	1.07
Utah	32	23	.72	24	23	.96	47	56	1.19	2	4	(b)	0	0	(b)	142	104	.73
Wyoming	34	37	1.09	27	15	.56	29	28	.96	2	2	(b)	7	6	(b)	80	55	.69
District 9—Total	1,488	1,368	.92	1,739	1,783	1.02	1,273	1,279	1.00	237	243	1.02	1,376	1,538	1.12	8,584	8,382	.98
New Mexico	132	188	1.42	114	96	.84	116	109	.94	23	22	.96	0	0	(b)	376	343	.91
Oklahoma	414	391	.94	549	383	.70	698	635	.91	92	79	.86	298	174	.58	2,616	2,070	.79
Texas	942	789	.84	1,076	1,304	1.21	459	535	1.16	122	142	1.16	1,078	1,364	1.26	5,592	5,969	1.07
Canal Zone	16	16	(b)	25	16	.64	34	31	.91	3	0	(b)	0	1	(b)	284	223	.78
Total continental United States [a]	28,866	27,173	.94	27,143	26,275	.96	31,605	29,204	.93	3,049	3,033	.99	7,004	6,251	.89	109,989	103,870	.94
Total United and Territories [a]	29,190	27,422	.94	28,014	26,967	.96	32,140	29,774	.93	3,473	3,453	.99	7,007	6,269	.89	112,308	105,823	.94

[a] Trend ratio based on areas reporting comparable data in both periods.
[b] Ratio not calculated when base is less than 20.
[c] Data not comparable.

Source: Form 8958-B USPHS—Venereal Disease Division, Office of Statistics 4/4/47.

[d] Total New York City and previously untreated cases admitted to clinics up-State New York.
[e] Previously untreated cases admitted to clinics and RTC's for treatment.
[f] Data from VM-820 instead of Form 8958-B.

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The JOURNAL of VENEREAL DISEASE INFORMATION

Volume 28 August 1947 Number 8

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FEDERAL SECURITY AGENCY

United States Public Health Service

FEDERAL SECURITY AGENCY

UNITED STATES PUBLIC HEALTH SERVICE

THOMAS PARRAN, *Surgeon General*

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reatment of the Syphilitic Pregnant Woman With Penicillin in Oil-Beeswax: A Comparison With Results Obtained Using Aqueous Sodium Penicillin[1]

rman R. Ingraham, Jr., M. D.; Elizabeth Kirk Rose, M. D.; Herman Beerman, M. D., D. Sc. (med.); Virgene S. Wammock, M. D.; John H. Stokes, M. D.; and Paul György, M. D.[2]

Previous reports have shown that ueous sodium penicillin is more effec e in the prevention of congenital philis by treatment of the infected preg nt woman than types of therapy for rly employed, and have suggested that is the treatment of choice in this con ion (*1*, *2*, *3*). The present report shows results over a longer period of obser tion with a somewhat larger group of tients treated with aqueous penicillin, and compares the results with those of a more recent series of patients treated with penicillin in oil-beeswax.[3]

Treatment with aqueous penicillin requires frequent injections and hospitalization. Penicillin in oil-beeswax requires less frequent administration and suggests the possibility of an ambulatory procedure. In the present study all patients were hospitalized for treatment; but single daily injections of penicillin in oil-beeswax, as were here employed, could be conducted as office or out-patient procedure, provided treatment could be given every day. A total dose of 4.8 million Oxford units of amorphous calcium penicillin in peanut oil-beeswax was given over a period of 9 days as follows: A single injection of 150,000 units the first day, of 450,000 units the second day, and of 600,000 units for the succeeding 7 days. The injection was given intramuscularly in the buttocks, at 4:00 p. m. No other treatment was used.

From the Institute for the Study of Ve eal Disease, University of Pennsylvania, S. Public Health Service cooperating, and Penicillin Syphilis Panel of the University spital. The Institute, the Departments of rmatology and Syphilology and of Pedi ics, School of Medicine, University of Penn vania: the Division of Venereal Disease ntrol, Department of Public Health of Phil lphia; the Dermato-Syphilology Depart nt, Philadelphia General Hospital, the De tment of Dermatology and Syphilology of Pennsylvania Hospital, and the Children's spital are represented in the authorship. e obstetrical care of these patients was dered by the Department of Gynecology and stetrics, and the roentgenograms of the g bones of the infants were provided by the partment of Radiology of the University spital.

The work described in this paper was done ler a grant from the Research Grants Divi n of the National Institute of Health, in tinuation of a contract recommended by the mmittee on Medical Research between the ice of Scientific Research and Development l the University of Pennsylvania.

The investigation was assisted by the Squibb lowship in Chemotherapeutic Research.

Presented at the symposium, Recent Ad ces in the Investigation of Venereal Dis es, held in Washington, D. C., on April 17, 47, under the auspices of the Syphilis Study tion of the National Institute of Health.

[2] With the collaboration of John W. Lentz, M. D.; Howard P. Steiger, M. D.; O. M. Carrozino, M. D., M. P. H.; and S. Herbert Handler, M. D., M. P. H.; and the technical assistance of Verna Mayer Stein and Emily Stannard, Philadelphia.

[3] The patients included in this study were all treated at the Institute for the Study of Venereal Disease, Hospital of the University of Pennsylvania, and medical attendance follow-up was supervised by the staff of this organization, but individual cases were contributed from the following sources: University of Pennsylvania, 61 patients; Philadelphia General Hospital, 47 patients; Pennsylvania Hospital, 17 patients; other sources including city venereal disease clinics and private physicians, 13 cases.

Results of Additional Observation on Treatment With Aqueous Sodium Penicillin

Since this study was begun in the fall of 1943, both the infants and mothers in the group treated with aqueous penicillin almost uniformly have had satisfactory and prolonged posttreatment observation. Of the 92 mothers, all but 13 have been followed for periods of from 6 months to more than 2 years after treatment. The follow-up period of the infants averages 365 days; 73 of the 86 living nonsyphilitic infants have been followed for more than 6 months, and 40 for more than 1 year. Analysis of the group of mothers by race, stage of the disease, and week in pregnancy when treatment was commenced is given in table 1.

The increase in the size of the series and the longer period of observation have substantiated our original observations on the effectiveness of penicillin in preventing congenital syphilis. To June 1945 we had observed 1 infected infant among 37 born of syphilitic mothers treated with aqueous sodium pencillin. A detailed case report of this infant and mother, who relapsed clinically, is given in a previous publication (*2*). To April 1947 we have now had 2 syphilitic infants among 89 living infants, or 97.8 percent normal children from syphilitic mothers. The second syphilitic infant, as well as the first syphilitic infant, was born after the mother was treated for secondary syphilis with a total dose of 1.2 milli units. In the second instance, treatme was begun in the sixth week of pregnanc The mother's serologic response was n normal, her blood remaining positi with fluctuating titer for 281 days aft treatment, when she was re-treat mainly on the basis of giving birth to syphilitic child. She developed no v ible infectious relapsing lesions, but t infant was diagnosed definitely as havi syphilis and was given treatment at t age of 51 days. Both of the treatme failures in preventing congenital syphil therefore, occurred in women with sym tomatic early syphilis who were treat with a rather low total dosc of penicill (1.2 million units) relatively early pregnancy (6 weeks and 23 weeks r spectively) and who did not show s isfactory clinical or laboratory respons

Five additional mothers were r treated for either clinical or serologic r lapse following delivery. Two othe were reinfected. In each of these i stances, however, the infant has r mained normal.

Including the mother of the first syp ilitic child, the incidence of clinical r lapse in the aqueous penicillin group h been 5.4 percent. The clinical relaps were observed at 122 days, 128 days, 2 days, 602 days, and 901 days followi treatment of these patients. The tw serologic failures include the mother the second syphilitic child, and were d termined at 146 days and 281 days f

Table 1.—*Syphilitic pregnant women treated with penicillin. Comparative statistic data on material used, analyzed by type of treatment*

Type of penicillin	Number of patients treated	Race				Stage of disease						Week in pregnancy when treatment was commenced							
		White		Negro		Early symptomatic		Early latent		Late		1–15		16–23		24–31		32–4	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Pereent	Number	Pereent	Number	
Aqueous sodium	92	14	15.2	78	84.8	44	47.8	36	39.1	12	13.0	11	12.0	26	28.3	34	37.0	21	2
Oil-beeswax	46	1	2.2	45	97.8	16	34.8	24	52.2	6	13.0	3	6.5	11	23.9	15	32.6	17	3

ing initial treatment. Four of these nen had received a total dose of 2.4 lion units of aqueous penicillin and ee had received 1.2 million units.

'or the purpose of this study, serologic ıpse is defined as a decrease in titer to onegativity or nearly so, with reversal a significantly high, sustained titer, hout the development of lesions. Pa- its who develop infectious relapsing ons usually show persistently positive ology or relapse serologically, but such es are classified as clinical rather than ologic relapses.

oth reinfections occurred in women o had received 1.2 million units of ieous sodium penicillin for sympto- tic early syphilis, with normal clinical l serologic response sustained at com- te negativity for a period of 2 years or to the development of fresh dark- d-positive lesions and positive blood ologic test of high titer. Reinfection s diagnosed at 953 days and at 1,004 's following initial penicillin therapy. he occurrence of seroresistance fol- ving penicillin therapy has been high ong these pregnant women. Thirty- percent of the women with sympto- tic early syphilis, 72 percent of the men with early latent syphilis, and all women with late syphilis treated with aqueous sodium penicillin during pregnancy failed to become seronegative in the period of observation (table 2). The average duration of follow-up was 15.7 months. Two of the women with secondary syphilis initially and 6 of the women with early latent syphilis were re-treated with 2.4 million units of sodium penicillin at periods varying from 388 days to 671 days following the initial penicillin course, because of sustained high serologic titers. The re-treatment had no effect in reducing the titers.

In another instance, a woman who was initially treated for secondary syphilis and re-treated for seroresistance at 365 days became negative at 438 days after the first course, and remained so. Another seroresistant early latent case, re-treated at 613 days, reached sustained seronegativity at 810 days.

Because serologic response in the second year and beyond, following initial penicillin therapy, has never been clearly defined, there is no completely logical basic indication for re-treatment of seroresistance alone. In some instances, as this study indicates, when the woman has remained seropositive for more than 1 year after therapy, re-treatment with penicillin has been carried out without particularly beneficial results so far as serologic

BLE 2.—*Response of the syphilitic mother following penicillin therapy during pregnancy; analyzed according to type of treatment*

Type of penicillin	Number of mothers followed	Clinical relapses		Reinfections		Serologic response of mothers												Average number of days to sustained seronegativity (excluding cases still seropositive)
						At delivery				At end of observation		By diagnostic groups seronegative at end of observation						
						Seropositive		Seronegative		Seropositive		Early symptomatic		Early latent		Late		
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent [1]	Number	Percent [1]	Number	Percent [1]	
ıeous sodium	92	5	5.4	2	2.2	66	71.7	26	28.3	52	56.5	30	68.2	10	27.8	0	----	245
beeswax	[2] 45	2	4.4	0	----	[2] 41	91.1	4	8.9	33	73.3	5	31.3	6	[2] 26.1	1	16.6	222

For totals in each diagnostic group, on which these percentages are based, see table 1.

mother treated for early latent syphilis died, immediately after delivery, of causes unrelated to penicillin apy or syphilis, and is thus excluded from this table.

response is concerned. Some patients have not been re-treated even though a positive serologic test has persisted. In this series, 6 mothers still seropositive at 1 year (of a total of 43 followed more than 1 year) after their initial penicillin course became seronegative during the second year and remained so. In fact, 1 mother (of a total of 15 followed more than 2 years) still seropositive at 24 months following therapy, reached what appears to be sustained seronegativity during the third year.

These points indicate that (1) women still seropositive at the end of 1 year after penicillin therapy for syphilis during their pregnancy still have a fair chance to become seronegative during the second year, or perhaps during the third year, without additional treatment; and (2) a negative blood serologic test in the mother is not essential to obtain a nonsyphilitic infant, inasmuch as the infants in this study have been 97.8 percent normal, irrespective of the serologic response.

Comparison With Group Treated With Penicillin in Oil-Beeswax

In the last 18 months, 46 syphilitic pregnant women treated with 4.8 million units of amorphous calcium penicillin in peanut oil-beeswax, given as described, have come to term. This group of women corresponds roughly to the group given aqueous sodium penicillin in that it is predominately Negro, the majority had early syphilis, and in that treatment was commenced in all stages of pregnancy (see table 1). It differs from the aqueous sodium penicillin group by having a larger percentage of early latent cases and a proportionately greater number of patients who commenced treatment after the thirty-second week of pregnancy. These differences are reflected in the results, particularly in the serologic status of the mothers at time of delivery and in the incidence of stillbirths.

In regard to the response of the mother to treatment (table 2), this series suggests that penicillin in oil-beeswax gives results almost as good as does aqueous sodium penicillin. Total dosages of aqueous penicillin were usually 1.2 or 2.4 mi lion units—seldom higher. Penicillin i oil-beeswax was uniformly 4.8 millio units. The total dosage given is probabl of less importance, however, than mai taining a satisfactory blood or tissue lev of penicillin for the period of treatmen Individual doses which were reasonabl certain to accomplish this were pr scribed.

One mother in the penicillin i oil-beeswax group died at the time (delivery, of an obstetrical complicatic unrelated to syphilis or to penicillin the apy. She has been excluded from tab 2, but her infant, who was living an normal, has been included in table 3.

Of 45 women treated with penicillin i oil-beeswax, there were 2 who experience infectious relapse, compared to 5 infe tious relapses among 92 women in tl aqueous sodium penicillin group. The women who relapsed following penicilli in oil-beeswax therapy had been treate initially for secondary syphilis; recurrir infectious (darkfield-positive) lesion were observed at 112 days and at 1 days. In one instance, the recurrence wa observed at about the time of delive and re-treatment was commenced imm diately. At the time of this report, tl infant seemed physically normal and wa seronegative at 52 days after birth. I the other instance, the mother gave birt to premature twin monsters, which die shortly after birth.

In comparing relapses in the 2 group it must be remembered that the mothe treated with aqueous sodium penicilli have been observed considerably longe than those treated with penicillin in oi beeswax. Nineteen of the 45 mothers i the latter group have been followed fo less than 6 months, and 37 for less tha 1 year. Because most relapsing case appear within the first year followin treatment, it is probable that the 5.4 pe cent rate for the aqueous sodium pen cillin group represents a much closer a proximation to the true situation tha does the 4.4-percent relapse rate for tl penicillin in oil-beeswax group, whic with further observation may increase.

LE 3.—*Outcome of pregnancy analyzed according to type of therapy given to syphilitic pregnant women during antepartum period*

pe of penicillin given to mothers	Number of infants delivered	Unsatisfactory outcome						Number of living infants	Living infants syphilitic		Follow-up of nonsyphilitic infants			
		Miscarriage		Stillbirth		Neonatal death					Seropositive at birth		Average period to seronegativity (days)	Average period of follow-up of infants (days)
		Number	Percent	Number	Percent	Number	Percent		Number	Percent	Number	Percent		
ous sodium	94	3	3.2	1	1.1	1	1.1	[1] 89	2	2.2	33	[2] 44.6	45	365
eeswax	48	0	------	4	8.3	3	6.3	41	2	4.9	17	[3] 45.9	51	125

infant died of an acute infection at the age of 195 days; no evidence of syphilis had developed in this period of
vation, which was long enough reasonably to rule out the disease. For details on the case, see previous
cation (*2*).

hese observations completed in detail on a total of 74 of the infants.

hese observations completed in detail on a total of 37 of the infants.

his possibility is suggested further
the slower serologic response among
mothers treated with penicillin in
eeswax. Only about 9 percent had
me seronegative by the time of de-
ry, in comparison with about 28 per-
seronegative in the aqueous peni-
n series. This result may be influ-
d by the inclusion of a greater pro-
ion of women treated after the thirty-
nd week of pregnancy or because
e were proportionately more early
nt cases in the penicillin in oil-bees-
group. On the other hand, an analy-
f the material by stage of the disease
vs that the real difference between
two groups is in the slower response
ng the symptomatic early group
ted with penicillin in oil-beeswax
ble 2). The lower average number
lays before reaching sustained sero-
ativity in the penicillin oil-beeswax
p, as compared with the aqueous peni-
n group, probably results from the
rter period of observation. In the
eous penicillin group the shortest pe-
before sustained seronegativity was
lays, and the longest period was 810
s. In the penicillin in oil-beeswax
up the shortest period was 21 days
the longest was 580 days, but only
t women had been followed for more
n 1 year.

In general, therefore, the clinical and serologic responses of the mothers in the two groups appear similar, although there is the distinct suggestion that the responses are somewhat slower when penicillin in oil-beeswax is used.

This impression is strengthened when the effect of the treatment on infection of the fetus is studied (table 3). Stillbirths and neonatal deaths were more frequent in the penicillin in oil-beeswax series, and even though the period of follow-up of the infant is shorter in this group, there were 2 syphilitic infants among 41 living offspring in comparison to 2 among 89 in the aqueous penicillin group.

The greater percentage of stillbirths in the penicillin in oil-beeswax series may not reflect failure of penicillin therapy as such, but rather failure to commence therapy early enough in pregnancy to prevent infection of the fetus. It has already been remarked that a greater portion of the mothers in the penicillin in oil-beeswax group (37 percent) began treatment after the thirty-second week than in the aqueous sodium penicillin group (22.8 percent). Three of the four stillbirths in the penicillin in oil-beeswax group were macerated fetuses delivered from 16 days to 2 months after treatment was started. There is the probability, therefore, that in these instances the fetus was grossly diseased when treatment was initiated and that penicillin merely failed to prevent the inevitable. Nevertheless, one of the great advances attributable to penicillin therapy of the syphilitic pregnant woman is the ability of this drug to permeate the placenta and to treat and cure the fetus in utero. Possibly one of the reasons for the greater incidence of stillbirths in the penicillin in oil-beeswax group is the inability of this procedure to sustain blood and tissue levels of the penicillin high enough to produce a uniformly satisfactory concentration in the fetal tissues. If the infant is infected before treatment is commenced, the possibility of cure in utero may be lessened when the one injection per day technic is used.

One of the two syphilitic infants in the penicillin in oil-beeswax series was born of a mother treated for symptomatic early syphilis; the other, of a mother treated for early latent syphilis. The latter is, in our experience, the first penicillin failure to prevent congenital syphilis when treating a pregnant woman with latent syphilis.[4]

The woman with early infectious syphilis was treated for darkfield-positive condylomata lata in the thirty-second week of her pregnancy. There was no reduction in serologic titer (256 Kline units) by the time of delivery, but her blood was seronegative after 11 months, without re-treatment. There was roentgenographic evidence of syphilis in the infant at the time of birth. When the titer of syphilis reagin did not drop at 1 month following birth and when the infant did not respond well to optimal pediatric care, the infection of the infant was considered to be active and treatment was instituted. In this instance, the osseous involvement was sufficiently deep in the shaft of the long bones to establish the likelihood that infection of the infant had occurred before the thirty-second week in utero. This case adds to the impression that penicillin in oil-beeswax as given in this series may not reach th fetus in sufficient concentration and wit sufficiently sustained blood level to cur the disease in utero when infection of th fetus has occurred.

The other mother who gave birth to a infected infant was a 21-year-old Negr woman who was treated in the twent sixth week of her pregnancy for a laten syphilis of unknown duration. She wa still seropositive (32 Kline units) months after treatment. The infant ap peared normal at birth but had a sus tained high serologic titer (64 to 12 Kline units) to the eighty-seventh da when roentgenographic changes chara teristic of an active inflammatory pro ess appeared in the long bones, an treatment was commenced.

The number of cases studied thus fa with penicillin in oil-beeswax is to small to permit drawing definite co clusions. However, there is some ind cation that it is somewhat inferior t aqueous sodium penicillin in preventin congenital syphilis—particularly whe treatment for early syphilis is begun lat in pregnancy, when there is a stron possibility that the fetus is already i fected. Under such circumstances, it i particularly necessary to maintain a effective level of blood and tissue pen cillin in the mother if there is to b permeation of the placenta in sufficie amounts to cure the fetus in utero. W feel that the published reports thus fa and our own experience strongly indicat that the infected fetus in utero ca usually be cured by aqueous sodium pen cillin given to the mother prenatally i satisfactory amounts. In this one r spect, penicillin in oil-beeswax seems t be less dependable.

In the total problem, however, pen cillin in oil-beeswax seems to be almo as effective as aqueous sodium penicilli and at least equal, if not superior, so fa as can be told with a small group cases, to the arsenic-bismuth thera previously employed. It is a satisfacto substitute, therefore, for aqueous pen cillin when hospitalization is not possib or when treating latent stages of the di

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[4] EDITOR'S NOTE: A similar case was reported in the JOURNAL OF VENEREAL DISEASE INFORMATION, 28: 108–119, 1947.

se. Best results for symptomatic early
philis in late pregnancy are obtained
rough hospitalization and use of
ueous sodium penicillin.

Summary and Conclusions

1. Extended study of aqueous sodium
nicillin in the treatment of the syphil-
c pregnant woman in total dosages of
: and 2.4 million Oxford units given at
to 4-hour intervals over periods of 8
10 days continues to show better re-
lts than any previously employed
thod of treatment. Forty-four cases
symptomatic early, 36 cases of early
ent, and 12 cases of late syphilis are
luded in this group.

2. The clinical response of the preg-
nt woman treated with aqueous so-
m penicillin is at least equal to that
nd generally in the treatment of symp-
natic early syphilis with 1.2, or 2.4
llion units. The incidence of clinical
lapse has been 5.4 percent. Two pa-
nts were reinfected after a period of
re than 2 years.

3. The fact that 32 percent of the
men treated with aqueous penicillin
: symptomatic early syphilis were still
ropositive at the end of the period of
servation and that the average interval
sustained seronegativity was 245 days
y indicate that dosage has been too
v. It is suggested that the penicillin
sage for the pregnant woman be at
st that generally employed for the
tient with early syphilis. These studies
ve indicated no advantage in using a
al dose of 2.4 million units rather than
: million units in protecting the fetus,
ovided the duration of therapy is at
st 7½ days and the interval between in-
tions is 2 to 3 hours. Cure of the
ther, however, may require higher
sage than this, so that a minimum total
se of 2.4 million units of aqueous sodium
nicillin is recommended. There is no
vious contraindication to larger dosage
an this. Maximal rather than minimal therapy is desirable for both mother and infant, should any question arise as to what treatment course to employ.

4. Forty-five mothers have been treated with a total dosage of 4.8 million Oxford units of amorphous calcium penicillin in peanut oil-beeswax, given over a period of 9 days. The over-all results are approximately equivalent to those of aqueous penicillin. Two living syphilitic infants have resulted, or a failure rate of 4.9 percent.

5. There is some indication that penicillin in oil-beeswax is less effective for symptomatic early syphilis in late pregnancy, if the fetus is already infected. In this situation, better results can be obtained more uniformly by using aqueous penicillin in hospitalized patients.

6. The risk of infection of the fetus seems to increase in proportion to the early symptomatic activity of the disease in the mother. An analysis by stage of syphilis at the commencement of therapy, irrespective of the type of penicillin course employed, shows that 3 living syphilitic infants (5 percent) occurred among 60 mothers with symptomatic early syphilis; 1 living syphilitic infant (1.6 percent) resulted among 60 mothers with early latent syphilis, and no syphilitic infants were born of 18 mothers with late syphilis.

References

1. Lentz, J. W.; Ingraham, N. R., Jr.; Beerman, H.; Stokes, J. H.: Penicillin in the prevention and treatment of congenital syphilis; report on experience with the treatment of fourteen pregnant women with early syphilis and nine infants with congenital syphilis. J. A. M. A., 126: 408–413, 1944.
2. Ingraham, N. R., Jr.; Stokes, J. H.; Beerman, H.; Lentz, J. W.; Wammock, V. S.: Penicillin treatment of the syphilitic pregnant woman. J. A. M. A., 130: 683–688, 1946.
3. Goodwin, M. S.; Moore, J. E.: Penicillin in the prevention of prenatal syphilis. J. A. M. A., 130: 688–694, 1946.

Venereal Disease Education

Terrence E. Billings, Surgeon, United States Public Health Service [1]

The Problem and the Possibilities

Education of the people has long been advocated as important in any public health program, and to this end educators have written pamphlets, prepared posters, filmed motion pictures, bought advertising space in newspapers, and spoken to radio audiences times without number.

The venereal disease control program which has flourished for the past 9 years has underwritten an enormous amount of printed and other educational aids which have been widely distributed. What the effect of the educational program has been, no one knows. One thing is certain—that the pamphlets, motion pictures, and magazine articles which have enjoyed so great a vogue have contributed little to that population group in which venereal disease is most prevalent. Part of this has been intentional, as it is the premise of many health educators that information must be poured on the topmost stratum and allowed to percolate to the lowest, although this sounds like an attempt to muddy a pond by strewing dust on the surface in preference to stirring up the bottom. Part has been inadvertent, as materials were prepared by workers who had had no actual experience in interviewing or otherwise learning all about venereal disease patients. The end result was an accumulation of booklets, posters, leaflets, and motion pictures which seemed designed for the carriage trade. How effective were they?

In reviewing the educational materials largely in use today, we receive the impression that format has not changed great deal in the past 30 years, and tha the contents are perhaps no more tha 10 years further advanced.

The approach has been chiefly negative and the policy has been one of "schrecklichkeit" rather than of reassurance guidance, and help. The promise of terrible retribution may have its place i some preventive programs, but in approaching one of the most basic biologi instincts perhaps other methods will b more effective. The punitive approac to venereal disease control was unsuccessful in the armed forces and was abandoned.

A further disadvantage of printed educational materials is their formidabl language. This is a barrier to a large population group than we like to think In an article in *Harper's Magazine*, January 1946, George R. Henry makes an unreserved statement to the effect tha approximately 50 percent of high schoo students have a fifth-grade reading abilit Certainly, with the relatively small number of high school students and graduate in our population, the reading level o public health educational aids should approach the reading level of the prospective audience rather than that of th author.

The incidence of venereal disease is certainly not extremely high in that stratu of the population which has an educational level of high school or above. I thus seems logical to direct the greate part of our printed materials to tha much larger population group which ha a reading level not exceeding that of th fifth grade. Perhaps the language use should be closer to that of the third o fourth grade. Since public health in general, venereal disease control not excepted, is a rather highly technical sub ject, it does not follow that an expositio of some phases of it must be couched i correspondingly difficult language. Th man in the street is hungry for explana

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Editor's Note: This paper is presented by the author as an expression of his observations and experiences in one area of the South. Although there may be readers who disagree with a number of his opinions, his discussion is stimulating and will perhaps bring forth additional thoughts on the subject of venereal disease educational activities.

ns of things medical in language that
can understand.

The inefficiency of educational efforts
venereal disease control has been
rne out by clinical experience in out-
tient and in-patient facilities. Such
ochures as "Syphilis, Its Cause, Effect,
d Cure" were found to be far beyond
e grasp of patients who came for treat-
ent, not only because of the language
ployed but also because of the presen-
tion methods of such ideas as the germ
eory. I present the true story of a
tient with secondary syphilis who
psed from treatment.

This patient had come to the clinic
a named contact of a patient with early
philis, was found to have darkfield-
sitive lesions, and was placed under
eatment as an out-patient. After three
jections of an arsenical and one of
smuth, she became delinquent. After
veral weeks she was finally returned to
e clinic. At this time she was inter-
ewed and advised as to the potential
riousness of her condition, which in-
rmation she received with profound in-
fference, except for the statement that
e had syphilis, which she denied.

She was then asked, "If you do not
ve syphilis, why did you first come to
e clinic?"

"I had worms," said she with assur-
ce.

"What in the world made you think
u had worms?" her physician asked
r, and to this she replied, "Well, I seen
em through that glass thing in the black
and." And this patient had not only
en told her diagnosis, but had had an
ucational interview, and, as a finish-
g touch, had been shown her own dark-
ld examination! The sight of white
ings that wiggled had introduced the
ly familiar note in the whole pro-
dure.

It also became apparent that the mo-
on pictures which were available for
-center educational purposes were of
tle value. Our patient population was
nvinced that motion pictures were for
nusement purposes only, and in the
owing of "Know For Sure," the fall of the concertina from Tony's nerveless fingers invariably produced a chorus of guffaws that would have gladdened the heart of any comedian. No description of the manner of transmission of syphilis was given. There was no discussion of the primary and secondary lesions or late manifestations, and the general implication was that high school football players, bankers, the drivers of large cars, and the owners of grocery stores had better be on their mettle lest their peccadilloes find them out.

Beside hedging the questions of how syphilis is acquired, what its first signs and symptoms are, and its ultimate outcome, and doing even this hedging in rather technical language, both films and printed material referred again and again to weekly injections for 18 months or 2 years as the only treatment of worth.

With this educational material, we felt that patients who knew little of venereal disease or treatment methods before did not know a great deal more after they had seen it.

One barrier to change in educational mediums is the traditional conservatism of the medical profession. This is reasonable and understandable. No reputable physician or health worker wishes to appear flamboyant, nor does he wish to endorse any printed material which is not dignified, restrained, and suggestive of the professional atmosphere.

Unfortunately, the great majority of the population does not wish to receive its information in this sort of package, as witness the type of advertising employed by a soap manufacturer. This company prints a staid compend entitled "The Medical Uses of Soap," directed at the medical profession, which discusses the changes in surface tension and other scientific qualities associated with the use of its detergents. Useful as this may be medically, it will not persuade any housewife to purchase laundry soap. In order to achieve this end, in its advertising directed at the general public, the company makes a downright statement: "Such-and-such soap gets out dirt without injuring fabric or hands, and does it fast." The advertisement is then pointed by a story in pictures, with a text which can be read by a second-grade child, illustrating the dire results which may ensue if Mr. Smith's shirts are gray, and the happy ending which follows the use of such-and-such soap.

No one has told an untruth. It has been suggested that dirty clothes make some men unhappy, that the use of the proper agent may end both dirtiness and unhappiness, and it has been so suggested that the entire idea may be assimilated in 30 seconds, with a minimum of effort. It obviously is a practical idea, or it would not be continued at considerable expense in the pages of popular magazines directed at the female section of our population.

Now few people, except the very young, have an aversion to soap. All of us have an aversion to illness, especially if it be of a serious nature and further complicated by the stigma still attached to venereal disease. It is for this reason that a pamphlet with "Syphilis" printed in bold letters on its cover often repels a person who might otherwise pick it up. The implication is that he may have the disease. On the other hand, he will gladly read a story about syphilis which portrays someone else who is suffering from it. When he has read the story, he has acquired some information willy-nilly, and in the future, if he suspects he may have syphilis, he may take steps to get treatment.

If a story about syphilis is to be written for the general public, it must be presented in a popular form, since the average candidate for the acquisition of venereal disease is no more interested in "An Analysis of Infectious Syphilis with Notes on Incidence, Prevalence, and End Results" than is the housewife in "The Medical Uses of Soap." From the example of various soap, tobacco, and pharmaceutical companies, it appears that the comic strip is both popular and effective. The usual reply to this is that syphilis is no laughing matter. The usual comic strip or book is no laughing matter either. Of the myriad "comic" strips being printed today, very few indeed ar funny; the remainder are stories of ac venture, law enforcement, and the like.

One very definite advantage of th comic book is that this type of materia presents information in a form which i read avidly by a very large number o adults. Its language is of necessity simple, and it is extremely useful as a story telling medium. In addition to the information which it may present throug printed captions, it attracts the reade by means of colored pictures and by th graphic representation of action. Thes latter elements alone transmit a certai amount of information to the one wh looks but does not read.

The popularity of this type of literature, if it may be classed as such, can b estimated by the number of comics see in daily newspapers, and by the selectio available at news stands or drug stores i any city, large or small. Lest it be sai that these are not truly representativ most of us who were in a position to not the reading matter available in Arm Post Exchanges and the Ships' Servic Stores of the Navy will recall that ther were enormous numbers of comic book for sale. Surely the armed forces, afte the beginning of selective service, represented a fairly typical cross section of th male population. To usurp a certain advertising slogan, "Such popularity mus be deserved."

Advertisements are couched in term of comic strips because comic strip work; comic books are printed in number and profusion because the publi wants comic books; the Catholic Churc sanctions the publication of *Catholi Comics* because it feels that this bookle presents material which will stimulat young people to Christian living; the Institute of Life Insurance publishes comi books on insurance plans because the offer to the public assimilable insuranc information.

It would appear that the elements o appeal and storytelling which will induc the public to buy soap of one type in pre erence to soap of another, or to adhere t a socially acceptable manner of life, or t

ow a pattern in the buying and con-
sion of life insurance, may also be ap-
d to the dissemination of information
ich will give people in general a more
nplete understanding of disease pro-
ses, their significance, and the steps
t may be taken to combat them.

)ther mediums may, and should be
d as educational aids. Consider, for
tance, the so-called confession maga-
es. Their simple language and their
ral illustrations (usually posed photo-
phs) might well be employed, with
table editing and consultation on the
hnical problems involved in diseases
public health importance, as a means
the transmission of important infor-
tion to a large reading public.

rue enough, the *Readers' Digest*, the
man's Home Companion, and other
ilar publications have been active in
publication of many articles relative
public health and disease prevention.
e fact remains, however, that many
ple who need this information find the
aders' Digest and the *Woman's Home*
mpanion beyond their reach financially,
well as culturally and educationally.
r instance, in one large and well-staffed
id treatment center, a survey of new
missions indicated that only about 2
cent of patients were familiar with
icles on venereal disease which have
peared in publications of the type men-
ned above.[2] The enlightenment of 2
cent of a group does not indicate a
y striking degree of success, at least
this field.

t is not infrequent, especially in towns
some size, to find that patients with
nereal disease have gained their limited
owledge from that type of motion pic-
e billed "For Adults Only." Such
ns attract enough people to make it
fitable to operate them, and it is rea-
nable to assume that among the audi-
e are potential patients. Lurid
ugh these films are, unprofessional in
proach, and generally in bad odor, the
ducers might not be unapproachable
scientifically correct material were
de available to them. If worth-while educational facts were incorporated in such films, they certainly would do no harm and they would reach a proportion of the population which otherwise might remain untouched. Surely the advantage of adequate therapy could be emphasized.

If a reputable organization did not wish its name linked with "confession magazines" or with motion pictures entitled "Stolen Love," there is no reason why a responsible group could not act in an advisory capacity sub rosa.

If public health educational materials are to meet with success, they must be culturally adapted to the population group which needs them. It does not seem reasonable to assume that the great bulk of the people will accept or utilize to any extent something which they do not desire or enjoy, simply because they are informed that it is good for them.

It may be that none of the suggested methods are practical. It may be that those who control the output of venereal disease education materials are already exploring these fields. It is entirely possible that such methods would not be successful; it is very probable that if they were successful, their effect would be difficult to estimate. However, it is unquestionably true that the majority of the materials now in vogue are not reaching the population segment which they should reach, and where education in every phase of public health is badly needed. Mohammed has been calling the mountain, and in doing so has achieved only the exercise of his voice.

The Comic Book as a Medium

A difficult factor to measure in a health program, according to Dr. Harry S. Mustard, is the effect of education. This attempt to gage the results attending the use of a relatively new medium in venereal disease education is no exception to the rule.

In an effort to produce a type of venereal disease educational pamphlet acceptable to and readable by rapid treatment center patients in Mississippi, work was begun in the summer of 1945 on a comic book directed toward the people of an essentially rural, cotton-economy re-

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Personal communication.

gion, in the deep South. The final draft and rough drawings were completed early in 1946, and it was finished and printed by the Venereal Disease Education Institute, of Raleigh, N. C.

This comic book, entitled "Little Willie," is a 14-page booklet, printed in 4 colors on pulp paper, and available at 3 cents per copy when purchased in bulk. It has been used intensively since June 1946 in the 3 rapid treatment centers in Mississippi, and has been widely distributed in 3 of the larger counties.

Since no statistically significant data can be presented, this discussion must necessarily be limited to a mass of subjective impressions which have been built up during the short time that "Little Willie" has been in use by the rapid treatment centers in Mississippi.

This comic book has been received enthusiastically by the rural population in the counties in which it has been distributed, and by patients in the centers. Its appeal is probably based on the factors of brightly colored pictures, portrayal of a familiar way of life, the recounting of a story with which many are familiar, and, of course, a happy ending. Many patients, before discharge, ask for additional books to take home to their families. It seems particularly significant that the considerable number of illiterates among the patients are sufficiently attracted by the pictures and colors to ask other patients to read the book to them. One tangible factor is that very few are found on the grounds or in the trash cans, as contrasted with the fate of most other educational literature used in the centers.

The story is that of Little Willie, a brawny countryman who lives with his aunt and uncle on a plantation. Uncle Joe, who has many infirmities allegedly due to "bad blood," acts as Willie's foil and his mentor in the home treatment of venereal disease.

Willie enters a cotton-picking contest, and of course wins. With his prize money he purchases a zoot suit, and thus arrayed, meets a young woman whom he describes as the "cleanest looking" he ever met. As a result of this romanc Willie develops a chancre which he trea with the usual home remedies to no avai When he develops secondary lesions, goes to the health department and the is referred to the rapid treatment cente where he is cured in 10 days. The stor closes with Willie carrying Uncle Joe the doctor, with the remark that he's n too old to know about a good thing.

The positive approach is emphasize throughout. Such unpleasant aspects therapy as injections, quarantine, an drug reactions are not mentioned Th points are made that syphilis can b cured quickly, that everyone with syphili should be cured because "You will liv longer, you will not be sick as often, yo can make a better living, and you ca give your children a better chance tha you had!"

The comic book is used as only part the educational program in the center and serves as a supplement to lecture projection of colored slides, individual i terpretive interviews, and, of course, co tact with the medical and nursing pe sonnel. In addition, it is distributed to limited number of potential patients b being sent to all contacts of primary an secondary syphilis named at the cente as a preliminary introduction to venerea disease education which will be continue by the venereal disease contact investigator, by contact with the local healt department, and in some instances by referral to a rapid treatment center. Up t the time of this writing, some 40,00 copies have been distributed by the centers, by county health departments, an by the Serologic Survey now operating i the State.

What part it has played in the tota program cannot accurately be determined Those who have worked with it feel tha there has been some effect in the genera attitude of patients in the centers and o the population in the counties in whic it has been distributed. Although it cannot be demonstrated statistically, we fee that the comic book is a medium for th presentation of public health informatio which should be developed further.

CURRENT LITERATURE

Note: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the past 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

. J. Clin. Path., Baltimore

comparative study of the Kolmer complement-fixation test for syphilis with plasma and with serum. Katherine O. Patterson. 16: 277–278, Apr. 1946.

note on the titration of Kline antigen. B. S. Kline and H. Suessenguth. 16: 391–394, June 1946.

acutainer for collection of citrated blood in tests for syphilis. Recalcification of plasma by gypsum. Inactivation of serum with clots. Robert D. Barnard and Loretta van Hala. Technical Section, 10: 173–175, Sept. 1946.

one lesions in early syphilis. Report of a case. Aaron M. Lefkovits and Kenneth R. Cross. 16: 693–700, Nov. 1946.

alse positive Kahn reactions. Loss of titer on storage of serum in ice box. Joseph M. Lubitz. 16: 768–775, Dec. 1946.

. J. Dis. Child., Chicago

reatment of infantile congenital syphilis with penicillin. Albert Heyman and Joseph Yamplosky. 71: 506–512, May 1946.

. J. Syph., Gonor. & Ven. Dis., St. Louis

Bibliography on papers and books on venereal disease.) John Hinchman Stokes. 31: 101–108, Mar. 1947.

ransmission of experimental syphilis from mouse to mouse—absence of Spirochaeta pallida and of pathologic changes in presence of successful inoculation. Udo J. Wile. 31: 109–114, Mar. 1947.

Six- to twelve-month follow-up results in early syphilis treated by a twenty-day intensive arsenobismuth system. Donald M. Pillsbury and Adolph B. Loveman. 31: 115–123, Mar. 1947.

The treatment of early syphilis by the twenty-six-week mapharsen-bismuth schedule. Thomas H. Sternberg and William Leifer. 31: 124–134, Mar. 1947.

Reactions to twenty-day intensive therapy with mapharsen and bismuth for syphilis with a note on the use of BAL in their management. Frank E. Cormia and Stuart G. Blauner. 31: 135–149, Mar. 1947.

*Dichlorophenarsine hydrochloride in the treatment of syphilis. Herman Beerman and Virgene S. Wammock. 31: 150–162, Mar. 1947.

Treatment of paroxysmal hemoglobinuria with penicillin. Report of a case. Lawrence C. Goldberg. 31: 163–165, Mar. 1947.

*The clinical, radiologic, and pathologic aspects of late pulmonary syphilis—effects of penicillin therapy. George V. Kulchar and Frank Windholz. 31: 166–180, Mar. 1947.

A proposed clerical system for a city venereal disease control program. Harry Pariser. 31: 181–191, Mar. 1947.

*The present status of immunity and allergy in syphilis. Erich Urbach and Herman Beerman. 31: 192–215, Mar. 1947.

*The Weltmann serum coagulation reaction in syphilis. J. Lamar Callaway. 31: 216–220, Mar. 1947.

*Nonspecific serologic tests for syphilis. Loren W. Shaffer. 31: 221–224, Mar. 1947.

*Practical aspects of verification tests for syphilis in office practice. S. William Becker. 31: 225–234, Mar. 1947.

The problem of positive serologic tests for syphilis in lupus erythematosus. With report of three cases. Cleveland J. White. 31: 235–238, Mar. 1947.

Six- to twelve-month follow-up results in early syphilis treated by a twenty-day intensive arsenobismuth system. Donald M. Pillsbury and Adolph B. Loveman. Am. J. Syph., Gonor. & Ven. Dis., 31: 115–123, 1947.

The authors report on a series of 1,343 consecutive patients with early and early latent syphilis treated by a system of intensive arsenobismuth instituted in April

1943 at four selected Army hospitals in the European Theater.

The treatment schedule consisted of the administration of arsenoxide in a total dosage of 20 mg. per kilogram of body weight in 20 injections over a period of 20 days, with coincident administration of a total dosage of 1,280 mg. metallic bismuth in 8 injections of bismuth subsalicylate in oil.

Although over 4,000 patients with early syphilis received this therapy without mortality from treatment, this method was found to be inherently toxic, requiring expert medical supervision. The principal causes of suspension of treatment were leukopenia, secondary fever (with or without cutaneous manifestations), toxic encephalopathy, and hepatitis. Patients who had not previously received a trivalent arsenical compound did not, as a rule, exhibit serious reactions prior to the sixth injection of mapharsen. Since serious reactions were usually preceded by fever, it is recommended that laboratory studies to determine the type of reaction be restricted to those patients showing fever.

Serologic relapse was noted in 1.73 percent of the total number of patients, and in 4.26 percent of the patients followed for 1 year or more. In the latter group, the serologic relapse rate was 2.4 percent in patients with seronegative primary syphilis, 5.6 percent in those with seropositive primary syphilis, and 4.5 percent in patients with secondary syphilis. Incidence of serologic relapse under this form of treatment is claimed to be very satisfactory as compared to other modes of treatment, including penicillin. None of the patients treated under this system developed symptomatic neurosyphilis. Of 785 individuals whose spinal fluids were examined six or more months after treatment, some abnormality was noted in 6 patients, 3 of whom had positive spinal fluids.

It is concluded that the 20-day intensive arsenobismuth system of therapy herein reported is so high in toxicity as to be unjustifiable in comparison with penicillin alone or to penicillin plus chemotherapy given on a less toxi schedule.

The treatment of early syphilis by the twenty-six-week mapharsen-bismuth schedule. Thomas H. Sternberg and William Leifer. Am. J. Syph., Gonor. & Ven Dis., 31: 124–134, 1947.

The authors discuss the treatment o early syphilis by means of the 26-week mapharsen-bismuth schedule found to b satisfactory in the Army. In July 194 due to necessity for a shortened treatmen system, the current schedule of alternating courses of arsenoxide or neoarsphenamine and bismuth subsalicylate over a period of 12 to 18 months was supersede by the shorter method of 40 injections o arsenoxide and 16 injections of an insoluble bismuth administered in 25 weeks.

The present report is based on a stud of 3,000 syphilis registers taken from th Office of the Surgeon General. Register were selected in which treatment ha been initiated prior to January 1, 194 and had approximated a total of 2,400 mg mapharsen and 3.2 gm. bismuth subsalicylate administered in less than 38 weeks There were 1,330 patients in the seronegative primary stage, 1,207 in the seropositive primary stage, and 463 in the secondary stage of syphilis. Thus, nearly 8 percent of the 3,000 patients had commenced treatment in the primary stage o the disease. Of the 3,000 patients, 1,37 were white and 1,630 were Negro.

Treatment was in general well tolerated, it being necessary to abando arsenical therapy in only two instance (severe jaundice and arsenical dermatitis). Other reactions noted include gastrointestinal symptoms, fever, malais and headaches. There were no deat among the 3,000 patients in this series.

Measuring the follow-up period fro the onset of treatment, 87 percent of t entire group of 3,000 individuals we observed for longer than 9 months and 7 percent from 12 to 36 months. Of th 1,330 patients in the seronegative primar group, 1,296 (98.25 percent) were progressing satisfactorily at the time of the last examination; in the seropositi nary group of 1,207 patients, 1,131 .48 percent) showed satisfactory gress; and in the 463 patients in the ondary stage, 411 (89.34 percent) were gressing satisfactorily. Only 18 (0.64 cent) of the 2,842 cerebrospinal fluids mined at some time following initia- n of treatment were found to be ab- mal.

wenty-four of the 3,000 patients had recorded follow-up examinations and e not included in the determination percentages. Therefore, of the 2,976 ients in all stages of the disease ob- ved for varying periods following the iation of treatment, 2,838 (95.36 per- t) were progressing satisfactorily in respects. A total of 138 patients (4.64 cent) manifested some form of relapse ad positive or doubtful serologic tests l were therefore considered treatment ures.

eactions to twenty-day intensive ther- with mapharsen and bismuth for hilis with a note on the use of BAL their management. Frank E. Cormia l Stuart G. Blauner. Am. J. Syph., nor. & Ven. Dis., 31: 135–149, 1947.

his paper deals with the reactions urring in a series of 500 syphilitic ients treated over a period of 20 days h mapharsen and bismuth subsalicy- e. On this schedule, mapharsen was en daily in a unit dosage of 1 mg. per ogram of body weight per day, the ividual daily dose being limited to a ximum of 75 mg. Bismuth subsalicy- e was administered concurrently in a it dosage of 0.2 gm. at intervals of lays, with a total of 8 injections in a iod of 22 days. At the termination of 22-day hospitalization period, 10 addi- nal weekly injections of bismuth were en to complete the therapy.

f the 500 patients treated, there were with seronegative primary syphilis, with seropositive primary syphilis, 89 h secondary infection, 60 with latent hilis, and 2 with asymptomatic neuro- hilis. It was possible to complete the scribed amount of therapy in 476 (95.2 cent) of the 500 patients in this series. The reactions causing termination of therapy in the remaining 4.8 percent included cerebral irritation, jaundice, severe fever, and persistent albuminuria. The average time of onset of the first reaction was 7.7 days, 81.4 percent of the initial reactions occurring by the tenth day.

Therapy was interrupted in 157 patients because of febrile reactions, while uncomplicated toxic erythema was encountered in 33 patients. Fourteen patients developed a syndrome of cerebral irritation characterized by fever, headache, malaise, and abdominal pain. Hemorrhagic encephalitis developed in 2 patients, fever and cerebral irritation being followed by convulsions. Intensive therapy was stopped in 3 patients developing agranulocytosis; 2 of these exhibited agranulocytic angina. Therapy was also discontinued in 6 patients developing jaundice, which became clinically evident, on the average, on the sixteenth day of treatment. Reactions to bismuth included severe bismuth stomatitis, dermatitis, arthralgia, and "grippe."

BAL, a special antiarsenical agent, was used in the management of the reactions of 18 patients in dosages depending upon the severity of their reactions. The rapid response of the toxic erythema and severe fever groups, in comparison with the less dramatic effects in cases of cerebral irritation, suggests that optimum improvement may be expected in patients exhibiting little vascular damage. Even in more severe cases, however, BAL was found to produce a temporary reduction of fever and some alleviation of clinical symptoms.

Dichlorophenarsine hydrochloride in the treatment of syphilis. Herman Beerman and Virgene S. Wammock. Am. J. Syph., Gonor. & Ven. Dis., 31: 150–162, 1947.

The authors discuss the preparation dichlorophenarsine hydrochloride (3-amino-4-hydroxyphenyl-dichloroarsine) as an equivalent substitute for mapharsen (oxophenarsine hydrochloride) in the treatment of syphilis.

A review of clinical studies is presented. The first of these, a 2-year study reported by Tompsett in 1941, involved the use of dichlorophenarsine in 171 syphilitic patients. Rapid spirocheticidal action (12 to 48 hours), prompt healing of primary and secondary lesions, favorable serologic reversal, and mild reactions were observed.

Since various investigations showed dichlorophenarsine hydrochloride to be equal to arsenoxide in safety, ease of administration, and therapeutic efficiency, a study was carried out in the Syphilis Clinic of the University of Pennsylvania Hospital from March 18, 1943, to November 1, 1945. In this study, 521 patients were given from 1 to 40 injections per patient, on three different treatment schedules as follows: (1) routine, consisting of continuous alternating courses of dichlorophenarsine hydrochloride and bismuth subsalicylate, each given at weekly intervals to a total of 30 arsenical and 60 bismuth injections; (2) 26-week Army system, consisting of 40 arsenical injections given in 2 courses, 2 injections per week for a total of 20 injections each, plus 16 bismuth injections in 3 courses, 5 injections weekly during the two arsenical courses and 6 injections weekly between the two arsenical courses; and (3) the 12-week modified intensive system consisting of arsenical 3 times weekly for 12 weeks to a total of 36 injections plus intramuscular injections of bismuth subsalicylate (0.2 gm. each) once weekly throughout the 12 weeks of arsenical treatment. In this study, 190 patients were observed for less than 6 months, 315 for over 6 months, and on 16 no data are shown.

Detailed results are given regarding spirocheticidal action, lesion healing, serologic response, reactions, and relapses for each of the three treatment systems described. It is concluded that dichlorophenarsine hydrochloride seems to be less toxic than other arsenoxide products and may be safely employed as a substitute arsenical for patients exhibiting mild reactions to other arsenicals.

The clinical, radiologic, and patholog aspects of late pulmonary syphilis—e fects of penicillin therapy. George Kulchar and Frank Windholz. Am. Syph., Gonor. & Ven. Dis., 31: 166–1 1947.

The writers discuss diagnosis of syp ilis of the lung, a disease not universal fatal and often difficult to detect ev at necropsy. The incidence of pulmona syphilis is said to be approximately twi as great in males as in females, althou progression to death is far greater amo the latter. Syphilis of the lung may occ at any time from 1 to 25 years after i fection, but it usually appears within to 11 years—later than tertiary syphil ordinarily involves the viscera. Pulm nary syphilis may be associated wi gummatous lesions or similar late ma festations elsewhere; one worker, for i stance, found cardiovascular syphilis be present in 75 percent of 25 patien with late pulmonary syphilis.

Since syphilis of the lung is frequent asymptomatic, presence of the lesion m be detected only by fluoroscopy or X-r films. Routine fluoroscopy on all patien with late syphilis would probably le to a more frequent recognition of pu monary syphilis, it is claimed. Sym toms, when present, usually consist cough, frequently productive of mucop rulent or bloody sputum, and occasional severe pulmonary hemorrhage. Both t symptoms and clinical course of la syphilis of the lung appear to be mild than those of pulmonary tuberculos however.

The clinical diagnostic criteria of la pulmonary syphilis are summarized the authors as follows: (1) An anomalo history of pulmonary disease often wi cough, loss of weight, and fever; (2) history of syphilitic infection or of as ciated syphilitic lesions and a positi serologic test for syphilis; (3) exclusi of such diseases as pneumonia, tuber losis, and neoplasm; (4) effect of an syphilitic treatment on the lesion; a (5) X-ray appearance in connection wi response to treatment.

he pulmonary manifestations of syph- are classified into two basic groups—mas and pulmonary sclerosis—both to the formation of fibrosclerotic ulation tissue. A complete classi- ion of the disease includes the fol- ng groups: (1) Acute syphilitic ichial pneumonia; (2) chronic in- titial syphilitic pneumonia; (3) syph- iatous forms, including ulcerative and rogummatous lesions; and (4) syph- c bronchiectases.

oentgen examination is said to be the t important factor in the detection ulmonary syphilis and in the deter- ation of the effects of therapy; in fact, ough not infallible, such an examina- is the only means by which pulmo- y syphilis can be confirmed during the of the patient.

our detailed case reports of late pul- iary syphilis are presented.

he present status of immunity and al- gy in syphilis. Erich Urbach and Her- n Beerman. Am. J. Syph., Gonor. & . Dis., 31: 192–215, 1947.

his article presents a critical re- luation of the present status of immu- and allergy in syphilis.

he authors define allergy as the altera- in an organism's capacity to react to ntoxic substance as the result of the duction of specific antibodies. Im- ity is defined as a state of increased stance to pathogenic agents, this nge also being due to an increase in cific antibodies. If allergy is ex- ssed as either hypersensitiveness or osensitiveness, immunity becomes a cial form of allergic hypersensitive- s. Immunity may be natural or ac- red. However, there is no such thing natural resistance to syphilis in man; acquired immunity is the state which elops following recovery from a dis- e, manifested by the fact that the or- ism is incapable of becoming rein- ted with the same disease. Immunity, refore, covers all the changes taking ce in the course of an infection of an anism which has had a previous ex- ure to the same infecting agent.

The authors discuss the two concepts of immunity in treated syphilitic animals: (1) Neisser's concept that immunity is dependent upon the persistence of active foci of syphilitic infection; and (2) Chesney's tenet that while infection with Treponema pallidum is a prerequisite for the production of immunity, maintenance of the immunity does not necessarily depend upon the continued presence of the invader.

In man, untreated syphilis develops into four situations of approximately equal numerical importance: (1) spontaneous "cure," or complete freedom from all detectable evidence of the disease; (2) prolonged latency with only serologic evidence of infection; (3) development of apparent allergy with gummatous lesions; and (4) evolution of the degenerative, potentially lethal lesions of cardiovascular and neurosyphilis. These developments depend upon: (1) variations in the infectiousness of T. pallidum; (2) extraneous factors, such as pregnancy; and (3) the individual defense mechanism of the host. The last factor is especially important in regard to the defensive powers of the skin, as seen in secondary syphilis.

It is claimed that the whole course of untreated syphilis can be explained on the basis of allergy. The local expression of resistance on the part of the infected organisms, i. e., the chancre, is to be regarded as an allergic defensive measure which, although inadequate, does destroy a considerable number of spirochetes. This process marks the beginning of antibody production, the presence of such antibodies being evidenced by the organism's altered reactivity to reinfection. The cutaneous manifestations of secondary syphilis, also, are manifestations of an allergic defense mechanism, and the high degree of allergy which characterizes the tertiary stage of the disease explains the severity of local manifestations during a phase in which the number of spirochetes is small. This is also true in congenital syphilis.

While intensive treatment will probably cure early syphilis, inadequate therapy, which disturbs developing immunity without completely eradicating the disease, leaves the patient in a vulnerable and dangerous state which often results in various forms of treatment resistance or seroresistance.

The Weltmann serum coagulation reaction in syphilis. J. Lamar Callaway. Am. J. Syph., Gonor. & Ven. Dis., 31: 216–220, 1947.

The author discusses the value of the Weltmann serum coagulation reaction as a laboratory aid in differentiating exudative, infectious processes from parenchymatous fibrotic or proliferative conditions. Technic of the Weltmann procedure is described in detail.

Desirable features of the Weltmann serum coagulation reaction include its consistent values in normal, healthy persons and a definite range of deviation in known pathologic processes. The reaction is unaffected by dehydration, acidosis, alkalosis, allergic states, and anemia. Moreover, the coagulation band can be read within 20 minutes after a sample of serum is obtained. Investigators have observed the consistent occurrence of short coagulation bands in exudative conditions and prolongations of the bands in fibrotic, proliferative conditions. This empirical, nonspecific reaction is claimed to follow more closely than any other test the clinical course of the patient's illness.

The Weltmann coagulation reaction on serum from normal adults has a constant value of 6; acute infections have coagulation bands of less than 6, while fibrotic, proliferative reactions have bands longer than 6. Discussed in this paper is a survey of 610 unselected syphilitic patients seen on the services of Duke Hospital. A table is presented showing the Weltmann coagulation reaction in various stages of syphilis. It was seen that the coagulation band in all but 34 congenitally syphilitic patients was either normal or revealed a tendency toward prolongation.

Fever therapy (50 hours of typhoid antigen above 39° C.) and penicillin (4,000,000 units over a 10-day period) given to certain patients with centr nervous system syphilis exerted no sp cific effect on the coagulation reacti band, which was also unaffected by s or race.

Nonspecific serologic tests for syphili Loren W. Shaffer. Am. J. Syph., Gono & Ven. Dis., 31: 221–224, 1947.

Experience with military separate marriage certifications, and blood bar testing has shown that nonspecific ser logic tests for syphilis, considered rare the past, are now becoming more nume ous, particularly in precipitation ar flocculation tests, such as the Kahn, Klin Eagle, and Mazzini. The diseases acco panied by false positive serologic tests varying titers now include most febri and toxic states; in addition, certain i dividuals have been found to be carrie of nonspecific reactions which may persi throughout life.

Although intensive investigations a being made to develop a test or antig which will be specific for syphilis, no ge erally accepted method of differentiati between nonspecific and specific reactio by any one serologic test is now availabl Moreover, it is suspected that nonspeci positive serologic reactions for syphil occur in spinal fluids, and it is suggest that they be considered in early untreat cases wherein cell count, globulin, a colloidal gold are normal and only t serologic test is positive.

A study was begun in May 1946 at t Detroit Social Hygiene Clinic, where all patients over 30 years of age (exce pregnant women) who evidence no cli cal signs of syphilis and who deny a history of infection or treatment, b whose Kahn reaction is positive or pa tially positive, are given a quantitati Kahn and Kolmer complement-fixati test at the next visit. If a titer of fo or more units is then obtained, treatme is started with bismuth subsalicylate weekly intervals for 12 weeks, wi weekly quantitative tests. A spinal flu examination is secured in all doubtf cases after 4 weeks; if doubt still exis after 3 months in latent cases with no

l spinal fluids, observation is con-
ued. Results of this study will be re-
ted at a later date, it is stated.

he author notes the possibly alarming
ıation among military separatees.
 instance, among 150 clinically nega-
 veterans selected from the Detroit
S ial Hygiene Clinic who had doubtful
strong positive serologic tests but no
tory of syphilis, only 17 percent to date
e been positively diagnosed as syphi-
c. It is therefore suggested that a
re conservative attitude be followed
 the serologic diagnosis of latent
hilis when no history of the disease
sts.

**ractical aspects of verification tests
 syphilis in office practice.** S. William
ker. Am. J. Syph., Gonor. & Ven.
., 31: 225–234, 1947.

n a discussion of verification tests for
hilis, the author states that a high
r is of distinct value in a question-
e diagnosis of syphilis, since syphilitic
ctions tend to show a higher titer
n biologically false positive reactions.
mong the verification tests described
 the "differential temperature technic,"
 "triple quantitative technic," and the
lt dispersibility technic," all intro-
ed by Kahn; also the "inhibition
t" of Rein and Pillemer. The last
t is based on the fact that fresh hu-
n serum completely inhibits the for-
tion of floccules of syphilitic reagin by
oidal antigen, while it has little or no
ect on the aggregation by lipoidal
igens of false positive serums or the
ums of cows and horses.

lso discussed is the use of various
igens in the search for more specific
thods which will eliminate false posi-
e reactions. According to Kline, car-
lipin antigen has yielded such excel-
t results that it may be possible to
elop with it a single standard floccu-
ion test for syphilis suitable for uni-
sal adoption.

t present, the laboratory of the Chi-
o Department of Health is perform-
 Kahn's "differential temperature
hnic" on serums showing 20 Kahn units or less, and his "triple quantitative technic" on serums of more than 20 Kahn units. Seventeen case reports are presented in illustration of some of the problems encountered, such as the association of syphilis with other infections to cause atypical serologic findings. The cases are divided into syphilitic, probably syphilitic, probably nonsyphilitic, and nonsyphilitic groups.

The use of cardiolipin and purified lecithin, along with the new chemical methods devised by Neurath, hold great promise in the identification of nonspecific positive blood tests, the author claims.

AM. PRACTITIONER, PHILADELPHIA

Syphilis of the breast: chancre and gumma. R. H. Kampmeier. 1: 395–398, Mar. 1947.

ARCH. DERMAT. & SYPH., CHICAGO

Agranulocytosis. Report of twelve cases in which it followed intensive arsenotherapy for syphilis. Samuel Fisher, Howard L. Holley and George Fein. 55: 57–66, Jan. 1947.

Granuloma inguinale involving buttock and lymph node. Cultivation of the Donovan body in embryonic yolk. David B. Jennison, Elson B. Helwig, and J. H. Milstone. 55: 342–354, Mar. 1947.

Reactions in the treatment of syphilis with penicillin. Stephen Fromer. 55: 385–390, Mar. 1947.

A case for diagnosis (syphilitic glossitis?). John G. Downing. (New England Dermatological Society, Apr. 11, 1945.) Society Transactions. 55: 407–409, Mar. 1947.

A case for diagnosis (tuberculosis orificialis?). Bernard Appel. (New England Dermatological Society, Apr. 11, 1945.) Society Transactions. 55: 409–410, Mar. 1947.

Tertiary syphilis of the skin. G. Marshall Crawford. (New England Dermatological Society, Apr. 11, 1945.) Society Transactions. 55: 413–414, Mar. 1947.

Experiences in military dermatology. Their interpretations in plans for improved general medical care. (Also venereology.) Donald M. Pillsbury and Clarence S. Livingood. 55: 441–462, Apr. 1947.

Moeller's glossitis. A case with remission during pregnancy. (Differentiation from syphilis.) Herbert Rattner. 55: 463–473, Apr. 1947.

Cardiolipin-lecithin antigen. Recent development toward a single standard test of the blood for syphilis. B. S. Kline. 55: 514–524, Apr. 1947.

Relapse following penicillin therapy of early syphilis. Willard M. Meininger. (San Francisco Dermatological Society, Apr. 20, 1945.) Society Transactions. 55 : 572–573, Apr. 1947.

Syphilitic keratosis. Willard M. Meininger. (San Francisco Dermatological Society, Apr. 20, 1945.) Society Transactions. 55 : 578–579, Apr. 1947.

BRIT. J. VEN. DIS., LONDON

Changes in the cerebrospinal fluid in neurosyphilis after malaria therapy. Maeve Whelan. 22 : 121–134, Sept. 1946.

BULL. NEW YORK ACAD. MED., NEW YORK

*Pharmacology of streptomycin. Hans Molitor. 23 : 196–206, Apr. 1947.

Pharmacology of streptomycin. Hans Molitor. Bull. New York Acad. Med., 23 : 196–206, 1947.

In a discussion of the pharmacologic and toxicologic properties of streptomycin, the author lists the following pharmacodynamic effects which can be produced in animals by the administration of excessive doses of streptomycin and which are partly due to impurities: (1) Circulatory effects, consisting in animals of such reactions as peripheral vasodilatation and fall of blood pressure; in man, of headache, nausea, and fainting. The elimination of the impurity causing these reactions has now made them of historical interest only, however. (2) Hepatic changes consisting in fatty metamorphosis and degeneration, observed in animals but not in man. (3) Renal effects, such as albuminuria and hematuria. (4) Neurotoxic properties producing vestibular and auditory disturbances. Other occasional clinical reactions, such as skin rashes, temporary elevation of temperature, pain in the joints, and discomfort at the site of injection have been seen in man but not in animals. These pharmacodynamic effects were obtained with samples of streptomycin ranging from 90 to 3 percent in impurity; until a 100-percent pure streptomycin is available it will be impossible to determine which of the pharmacodynamic effects observed are intrinsic properties of the drug.

Streptomycin, which is readily soluble in aqueous media, is rapidly absorbed when injected subcutaneously, intramuscularly, and intravenously. Peak concentrations in the blood are produce within as little as 45 minutes after subcutaneous injection and within 30 minutes after intramuscular injection. Du to the brief persistence of these high concentrations in the blood, however, bes results require repeated administratio at 3- to 4-hour intervals. The amount o streptomycin absorbed after oral administration is quite low; rectal administration, either in form of microclyster o suppository, also produces unsatisfactor results as presently administered. Intrathecal and intracisternal injection o streptomycin results in high concentration in the spinal fluid, but only limite diffusion into the general circulation.

The development of streptomycin-resistant strains of bacteria is said to b one of the most serious obstacles to th use of this antibiotic, drug fastness ofte developing within a few days. While combination of penicillin and streptomycin may be used to retard the development of drug fastness, the administration of initial doses large enough to effect immediate elimination of the pathogenic microorganisms is, at the presen time, the most promising way of avoiding this complication. The dose o streptomycin must of course be adjuste to the susceptibility of the given strai of bacteria.

CONNECTICUT HEALTH BULL., HARTFORD

Blood tests for syphilis—1946. Earle K Borman and Friend Lee Mickle. 61 : 102 104, Apr. 1947.

CONNECTICUT M. J., HARTFORD

Interpretation of quantitative serologica tests for syphilis. 11 : 382–383, Ma 1947.

ILLINOIS HEALTH MESSENGER, SPRINGFIEL

And children too. (V. D. in Illinois.) 19 31, Apr. 15, 1947.

ILLINOIS M. J., OAK PARK

Indications for antibiotics (penicillin an streptomycin) in urinary tract infection Russell D. Herrold. 90 : 216–221, Oc 1946.

The positive serological reaction is not diagnosis of syphilis. John R. Porte 91 : 71–74, Feb. 1947.

apid treatment program for syphilis. Leonard M. Schuman. 91 : 192–194, Apr. 1947.

UST. MED., CHICAGO

he present status of penicillin and the newer antibiotics. Walter S. Priest. 15 : 434–436, July 1946.

. M. A., CHICAGO

reatment of syphilis and gonorrhea with penicillin. Foreign Letters. Denmark. 133 : 961, Mar. 29, 1947.

wedes help fight venereal disease in Poland. Foreign Letters. Sweden. 133 : 1030–1031, Apr. 5, 1947.

enicillin therapy of gonococcic endocarditis of the pulmonary valve. Walter K. Myers. Clinical Notes, Suggestions and New Instruments. 133 : 1205–1207, Apr. 19, 1947.

OWA M. SOC., DES MOINES

he diagnosis and treatment of congenital syphilis. Frederic E. Simpson. 37 : 160–163, Apr. 1947.

KANSAS M. SOC., TOPEKA

enereal disease. Committee Reports. 47 : 118, Mar. 1946.

I. A. ALABAMA, MONTGOMERY

cute and subacute yellow atrophy of liver. Report of three cases with necropsy. (Including syphilis.) John L. Chesnut. 16 : 322–331, Apr. 1947.

atality and mortality statistics. (Including syphilis.) Ralph W. Roberts. 16 : 399–401, May 1947.

ISSOURI M. A., ST. LOUIS

esistance to antibiotic agents. (Including gonococci) Robert H. Rutherford, Gilbert H. Marquardt and Arie C. Van Ravenswaay. 43 : 535–538, Aug. 1946.

AT. M. A., NEW YORK

ulture controlled treatment of gonorrhea with penicillin. R. Frank Jones and Kline A. Price. 39 : 89–93, May 1947.

AL : Its use in arsenic, mercury, and gold poisoning. Editorial. 39 : 123–124, May 1947.

KLAHOMA M. A., OKLAHOMA CITY

Cardiovascular syphilis.) Clinical pathologic conference. University of Oklahoma School of Medicine. Presented by the Departments of Pathology and Medicine. Walker Morledge and Bela Halpert. 40 : 136–138, Apr. 1947.

treptomycin. Editorial. 40 : 180, May 1947.

M. ANN. DISTRICT OF COLUMBIA, WASHINGTON

(Aneurysm of the aorta.) Clinico-pathologic conference. The George Washington University School of Medicine. Roger M. Choisser. 16 : 186–189, Apr. 1947.

M. OFFICER, LONDON

V. D. control at Portsmouth. 76 : 86, Aug. 24, 1946.

Control of v. d. Notes of the week. 76 : 177, Oct. 19, 1946.

The infected family as v. d. unit. 77 : 137, Apr. 5, 1947.

M. REC., KUTZTOWN

Penicillin in the treatment of venereal diseases. 159 : 357–358, June 1946.

Venereal disease rate reduction. Solomon R. Kagan. 160 : 237, Apr. 1947.

MEMPHIS M. J., MEMPHIS

The modern treatment of venereal disease. Symposium. I. Venereal disease control. Aaron W. Christenson. 22 : 52–53, Apr. 1947. II. The modern treatment of gonorrhea. Alfred D. Mason, Jr. 22 : 53–54, Apr. 1947. III. Diagnosis and treatment of chancroid, lymphopathia venereum, and granuloma inguinale. John L. Shaw. 22 : 54–56, Apr. 1947. IV. The treatment of syphilis. Vonnie A. Hall. 22 : 56–59, Apr. 1947.

MINNESOTA MED., MINNEAPOLIS

Effect of antiluetic therapy on bundle branch block. D. E. Nolan and George W. Pedigo. 29 : 582, 592, June 1946.

Streptomycin. Editorial. 29 : 803, Aug. 1946.

NATURE, LONDON

Penicillin treatment of syphilis. R. R. Willcox. 158 : 242–243, Aug, 17, 1946.

Venereal diseases in Great Britain. James Marshall. 158 : 846, Dec. 7, 1946.

NEW ENGLAND J. MED., BOSTON

The Commonwealth's health program. (Venereal disease control in Massachusetts.) Vlado A. Getting. 236 : 626–629, Apr. 24, 1947.

Streptomycin. I. Bacteriologic and pharmacologic aspects. II. Clinical uses. Roderick Murray, Tom F. Paine and Maxwell Finland. 236 : 701–712, May 8, 1947; 748–760, May 15, 1947.

CURRENT NOTES AND REPORTS

Obituary: Percy Starr Pelouze, M. D.

The following resolution was adopted at the Ninth Annual Session of the American Neisserian Medical Society, held June 8 and 9, 1947, at Atlantic City, N. J.

On March 12, 1947, Dr. Percy Starr Pelouze died at his home in Drexel Hill, Pa., at the age of 70. Our regret for his passing is tempered by the knowledge of his rich contributions in the field of urology, and the inestimable help he gave during his lifetime to the American Neisserian Medical Society, as member and president.

Throughout his professional career, he maintained a public-spirited concern not only for individual patients, but for all whose lives might be directly or indirectly affected by venereal disease. He was, as in his own description of the ideal public health officer, possessed of a degree of social vision that sees beyond the physician and the patient. He viewed them in their individual relationships to society at large.

Devoting his life to the treatment and control of gonorrhea during the many years when to do so was hardly "respectable," he at last came to see his position raised to the status it deserved, and himself revered as the Chief.

He graduated from Jefferson Medical College in 1902. From 1917 until his retirement in 1941, he was a member of the faculty of the Graduate School of Medicine at the University of Pennsylvania. In 1920, he was awarded the Alvarenga Prize for his work in connection with the control of venereal disease. He was formerly chief of the Urologic Service at Episcopal Hospital in Philadelphia and consultant at the Delaware County Hospital.

Vice president of the American Social Hygiene Association, member of the County Medical Society of Philadelphia, associate editor of the *Cyclopedia of Medicine and Specialties*, author of *Gonorrhea in the Male and Female*, his activities in the field were distinguished as they were varied.

At the beginning of the war, Dr. Pelouze came out of his retirement to serve as special consultant to the United States Public Health Service. During this period, he was able to put into practice hi oft-repeated axiom, "No communicabl disease has ever been controlled withou an informed public opinion back of it t support the effort."

He felt there was a job to be done and he did it. In 4 years, Dr. Pelouz made 874 talks to arouse community interest in venereal disease. He covere 34 States, Puerto Rico, and the Virgi Islands. Students in 53 medical school heard him. Fifty thousand physicians nurses, medical students, Army and Nav doctors, and interested individuals listened to his reasoned yet warmly huma arguments for greater public support o control work.

These talks were part of the "tea plan" worked out cooperatively by th United States Public Health Service an the American Social Hygiene Associatio in which he and a staff member of th latter organization toured the countr together.

The attitude of the medical professio toward treating gonorrhea occasioned hi deepest concern. As he pointed out, fo years at least 75 percent of the urologi departments in our medical schools hav given not more than one hour's instru tion on gonorrhea—a little about the di ease, a sketch about its treatment, an absolutely nothing about its public healt aspects. Dr. Pelouze felt strongly th need for broadening the physician's fiel of social vision, and scorned those wh would relegate gonorrhea to a position insignificance as a public health pro lem. It is up to those who knew, an loved and respected him, to see that th work of this great pioneer was not i vain.

Whereas: the death of Dr. Percy Sta Pelouze, whose memorable service to th American Neisserian Medical Society known to all its members, has ended long career of high achievement: No therefore, be it

Resolved: That at this, the Ninth A nual Meeting of the Society, the me bers here present stand in silent tribu to him; and be it further

Resolved: That this memorial and th resolution be spread upon the minutes this meeting of the Society, and that copy be forwarded to Mrs. Pelouze.

Venereal Disease Control Seminar

The fourteenth meeting of the Venereal isease Control seminar series of the iited States Public Health Service was nducted in Wilson Hall, National Initute of Health, Bethesda, Md., on June , 1947.

The seminars, covering research, curnt therapy, and practical problems in ntrol, are conducted as a series of reonal study groups to exchange current formation. The first seminar met on bruary 9, 1946, at Bethesda. Since en, the following meetings of the semar have been held: New Orleans, La., arch 7, 1946; Denver, Colo., April 16, 46; Bethesda, Md., May 7, 1946; Chigo, Ill., June 4, 1946; San Francisco, lif., July 5, 1946; Bethesda, Md., Sept. –11, 1946; Memphis, Tenn., October 3–4, 46; Salt Lake City, Utah, November 5, 46; Bethesda, Md., January 13, 1947; dianapolis, Ind.; February 18, 1947; allas, Tex., March 27, 1947; San Fransco, Calif., May 26, 1947. The next meetg is scheduled for September 17, 1947, Detroit, Mich.

Dr. J. R. Heller, Jr., Medical Director, enereal Disease Division, United States ublic Health Service, presided as chairan of the June 1947 seminar meeting.

At this meeting Dr. E. A. Holmes, Asstant Director, Richmond City Departent of Health, Richmond, Va., discussed e interview control card as a means of nproving a contact-tracing program in irginia. The program is based on the llowing prerequisites, which were condered as essential to good contact tracg: (1) Careful interviewing of paents; (2) well-trained investigators to cate contacts and bring them to examation; (3) a record system which shows hether new infections have been found; 4) a device which aids in tracing fection.

A 1-week training class is held for new nployees and 1-week orientation courses e conducted at 3-month intervals.

A record system utilizes specially degned cards which show whether a new fection has been located and how to trace the infection. A card is made out for each patient and shows his name, number, diagnosis, and date of diagnosis; and this card is filed with the epidemiologic reports on his contacts. As data on examination of contacts are obtained, the staff member is able to see the results of investigation and to decide whether the patient should be reinterviewed for additional information. Centralization of records and close cooperation among the local health department, the rapid treatment center, and other agencies make the system effective and informative.

After the record system had been in operation for 6 months, an adjustment was effected which made it possible to reinterview within a shorter time period those patients with infectious syphilis whose contacts were negative clinically and serologically on initial examination. This adjustment did not affect the original policy of examining contacts over a minimum period of ninety days after exposure.

Dr. E. Gurney Clark, Columbia School of Public Health, New York, summed up his report on private physician cooperation by saying that any plan for the control of venereal diseases which does not take into full account the potential cooperation of the medical profession cannot be fully successful; physicians indicate by their questions need for more instruction in the principles of venereal disease control; and that this instruction might well come in undergraduate days. He pointed out that the 5,500 medical school graduates each year are venereal disease control allies who should be mobilized, and that 48 percent of medical schools replying to a questionnaire indicated that no experience was available for medical students in the public health aspects of syphilis. Dr. Clark suggested that the Venereal Disease Division of the United States Public Health Service continue its interest in a detailed survey of the methods of teaching venereal disease control in medical schools, analyze the plans now in use, formulate an ideal plan with sufficient flexibility for its universal adoption, and participate in research in educational methods.

Dr. J. F. Mahoney, Medical Director, United States Public Health Service, Staten Island, N. Y., reported favorable results in the treatment of early syphilis with a schedule of penicillin alone, using 40,000 units every 2 hours for a total dosage of 3,400,000 units (85 injections). This study will be published in the JOURNAL OF VENEREAL DISEASE INFORMATION in an early issue. The serology procedures of the Venereal Disease Research Laboratory were described, and Dr. Mahoney stated that every serologic test of recognized standing is carried out routinely on every blood specimen received. Three tests based on cardiolipin antigen are also used, and the Kahn and Mazzini quantitative methods are employed. Dr. Mahoney stated that penicillin can be effective without arsenoxide, and that penicillin has more than fulfilled its early promise. He also said that the treatment period is still too long and that he is working on a 3-day schedule.

Dr. J. R. Heller, Jr., presented a progress report on the evaluation of rapid treatment of early syphilis, based on schedules used in rapid treatment centers. In this report, he discussed comparative results among the different schedules; time-dosage relationship in penicillin schedules; the effects of the additions of arsenoxide and bismuth to penicillin schedules. Fatality rates were shown when arsenoxide was used in conjunction with penicillin (there were no fatalities when penicillin alone was used in the same period of study). Severe reaction rates for both types of therapy were also shown.

Dr. A. C. Kinsey, Indiana University, Bloomington, Ind., in his report on sex behavior in relation to education, social standards, and the law, presented data on sexual behavior of various segments of the population. Dr. Kinsey's work indicates that there is more sexual activity
among human males than frequently ha
been assumed; that this activity is rel
tively constant when the present gener
tion is compared to the preceding gener
tion; and that legal attempts to curta
this sexual activity are inadequate an
almost universally unenforced.

Dr. F. A. Bryan, University of Roche
ter, Rochester, N. Y., in discussing m
cronized penicillin—its principles an
technics of the administration—said th
from the venereal disease angle, pen
cillin in glucose may be administere
either for prophylaxis or following dia
nosis. The 4-inch applicator, made
plastic material, contains a chamber f
the penicillin, and, below it, a silica g
drying compartment. A common ato
izer bulb is used. The outlet from t
penicillin chamber is placed in the p
tient's mouth and with each modera
squeeze of the bulb the finely pulverize
penicillin dust is forced into the respir
tory tract. The patient is advised
inhale as he squeezes the bulb and th
holds his breath, thus assuring that t
penicillin will be taken into the lungs a
will be retained. A small 2-inch vari
tion of this applicator, without a bulb,
operated by inhalation only.

Dr. G. V. Taplin, University of Roche
ter, Rochester. N. Y., in discussing m
cronized penicillin, clinical applicatio
and bacteriologic procedures, said th
micronized penicillin should be compar
ble to penicillin in oil and beeswax as
shows the same blood level curve. H
pointed out, however, that his studies
micronized penicillin have been carri
out only since February 2, 1947, and a
as yet very preliminary. Dr. Taplin us
slides to illustrate his report.

Dr. W. A. Brumfield, Jr., Venereal Di
ease Control Officer, State Department
Health, Albany, N. Y., and Dr. S. R. Ta
gart, Venereal Disease Control Office
District of Columbia, each presented
report on the administration of penicill
in oil and beeswax on an out-patient basi

Admissions for Treatment [1] to Rapid Treatment Centers, and Other In-Patient Care Facilities [2] in the Continental United States, July 1945–February 1947

Month	Total admissions for treatment						Previously untreated [3] admissions for treatment						Number of facilities reporting
	Syphilis					Gonorrhea not with syphilis	Syphilis					Gonorrhea not with syphilis	
	Total	Primary-secondary	Early latent	Central nervous system	Other [4]		Total	Primary-secondary	Early latent	Central nervous system	Other [4]		
1945													
July	8, 773	2, 932	4, 003	443	1, 395	4, 522	5, 489	2, 307	2, 346	148	688	3, 570	54
August	8, 428	3, 060	3, 492	458	1, 418	4, 645	5, 026	2, 448	1, 799	170	609	3, 579	55
September	7, 357	2, 977	2, 806	396	1, 178	3, 789	4, 715	2, 378	1, 568	156	613	2, 939	52
October	9. 322	3, 603	3, 659	569	1, 491	2. 689	5, 945	2, 908	2, 130	221	686	2, 096	52
November	9, 461	3, 553	3, 699	601	1, 608	1, 854	6, 108	2, 894	2, 237	265	712	1, 467	52
December	7, 697	3, 129	3, 053	390	1, 125	1, 493	5, 152	2, 550	1, 918	192	492	1, 187	53
1946													
January	12. 381	4. 842	4, 476	744	2, 319	1, 748	7. 710	3, 877	2, 573	308	952	1, 454	57
February	11, 533	4, 534	4, 202	717	2, 080	1, 479	7, 313	3, 690	2, 412	295	916	1, 144	55
March	12, 336	5, 048	4, 270	779	2, 239	1, 548	7, 809	4, 064	2, 417	332	996	1, 220	53
April	12, 361	5, 224	4, 149	737	2, 251	1, 519	7, 788	4, 205	2, 306	291	986	1, 211	55
May	12, 868	5, 403	4, 067	840	2, 558	1, 523	7, 961	4, 359	2, 173	305	1, 124	1, 244	56
June	11, 258	4, 860	3, 257	783	2. 358	1, 135	7, 212	3, 958	1, 801	306	1, 147	898	56
July	11, 882	5, 417	3, 521	695	2, 249	1, 114	7, 719	4, 374	1, 971	279	1, 095	850	58
August	14, 169	5, 858	4, 286	813	3, 212	1, 164	9, 493	4, 810	2, 677	352	1, 654	959	60
September	12, 206	5, 133	3. 773	672	2, 628	900	7, 977	4, 210	2, 122	284	1, 361	712	59
October	12, 624	5, 383	3, 927	789	2, 525	809	8, 325	4, 364	2, 239	360	1, 362	600	59
November	12, 248	4, 941	3, 818	765	2, 724	739	7, 949	4, 023	2, 157	311	1, 458	597	59
December	9, 758	4, 183	2, 915	528	2, 132	710	6, 529	3, 369	1, 704	211	1, 245	594	59
1947													
January	14, 564	5, 744	4, 481	947	3, 392	706	9, 369	4, 615	2, 545	342	1, 867	538	59
February	13, 619	5, 077	4, 304	946	3, 292	608	8, 722	4, 086	2, 530	361	1, 745	492	59

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[1] These data do not include admissions for diagnosis alone or admissions for posttreatment observation and will therefore differ from the monthly Venereal Disease Division report on rapid treatment center admissions.

[2] Supported in part by Federal grant.

[3] Includes all reinfections.

[4] Includes syphilis in pregnancy (any stage).

Source: Report of In-Patient Care—Summary.
USPHS—Venereal Disease Division.
Office of Statistics. (FD—EVM 6-11-47.)

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FEDERAL SECURITY AGENCY
United States Public Health Service

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FEDERAL SECURITY AGENCY

UNITED STATES PUBLIC HEALTH SERVICE

THOMAS PARRAN, *Surgeon General*

Editor: J. R. HELLER, Jr., *Medical Director*
Chief, Venereal Disease Division

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Socioeconomic Aspects of Granuloma Inguinale [1]

Robert B. Greenblatt, M. D.

anuloma inguinale is not only a med- problem but also a socioeconomic one. said that poverty breeds disease and ase breeds poverty. Of this malady, mic among the Negro population ughout the southern States, this rism is particularly true. Granuloma inale is a terrible affliction which ly and inexorably ravages its victim. ly understood and poorly handled, lisease becomes so loathsome that few cs and fewer physicians are willing eat those afflicted with it. There are toriums for the tuberculous; lepro- ums for the few hundred unfortunate 's in this country; clinics for the , the halt, and the blind; but for the rers from granuloma inguinale there rdly a refuge. For a great number is no hope—only death.

nce Maj. C. Donovan in 1905 found vell-defined parasites called Donovan es within certain tissue cells, cases been reported from all parts of the d, particularly from tropical and tropical climates. It is not generally eciated that this disease has such a distribution. It is indigenous to the ern States and wherever Negro com- ities are found throughout the United es. Estimates of prevalence range 5,000 to 10,000 cases. Little has been , but much can be done to eradicate canker. The very presence of many ms of this disease in any town or city sad reflection on the socioeconomic itions and sanitary standards not of the particular community, but also he public health program of that . Six thousand cases have been re- d in Dutch New Guinea in the South ic, and that may be understandable. occurrence, however, of 300 cases in y with a population of 500,000, or 100 cases in another city with a population of 66,000, to quote but 2 examples in the southern United States, cannot be readily condoned in our enlightened civilization.

Granuloma inguinale is a disease of the poor and of the unclean. The lesion commonly presents itself as a rising or swelling (bubo) in the groin. When the bubo ruptures, an exuberant granulation burgeons forth and unfolds a rich velvety red tissue similar to proud flesh. Early lesions are localized and appear clean. Daughter lesions soon develop. These spread slowly and coalesce. In time the skin surface covering the groin, the lower abdomen, the genitals, and buttocks may be involved. At first the patient is not in actual pain, but eventually he becomes incapacitated because of extension of the ulcerations. A strong, fetid odor pervades his immediate neighborhood. The presence of one patient in a large ward is betrayed by this peculiar noisome smell. Because of this and other reasons, such as the long incapacitating illness, most hospitals will not receive him. In fact, the patient is regarded with the disdain reserved for the leper, and soon finds himself alone, without employment, without money, without friends.

Granuloma inguinale is an infection with a proclivity for the genital zone and the oral cavity. Like leprosy, it has a low index of contagiousness. It has been assumed that granuloma inguinale is venereal in origin, but the proof to substantiate this impression is far from convincing. The fact that the primary manifestations are genital obviously allows for such a presumption. Offsetting the traditionally held notion of its venereal origin is the fact that normal individuals after repeated sexual exposure to persons with granuloma inguinale usually fail to contract the disease. Furthermore, conjugal granuloma inguinale is most uncommon. At present, knowledge concerning transmission is too incomplete to

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rom the University of Georgia School of ine, Augusta, Ga.

classify it categorically as a venereal disease.

The predilection of this affliction for the Negro race is strange. Persons of all races may succumb to granuloma inguinale but its overwhelming preponderance in the Negro race seems to point to some racial susceptibility. It is true that it is rarely seen among the white race and, when it does strike, the white victim usually belongs to the lowest economic stratum. Even so, the disease runs a milder course than in the Negro, and is limited in extent. It is quite conceivable that the differences in sexual hygiene and living standards of both races contribute to the remarkable variance in racial incidence. This seems to be borne out by the fact that a similar racial bias is to be found in India. There the disease is rare among Mohammedans, who have some religious scruples regarding cleanliness. The disease, on the other hand, is not uncommon among the notoriously miserable Hindu masses.

Heretofore, granuloma inguinale has proved, in its late stages, as incurable as advanced cancer or leprosy. In its early phases, however, it is readily curable. Certain compounds of antimony have been found useful. Early diagnosis, adequate therapy, and proper facilities for the management of such patients are answers to the problem. Unfortunately, many factors militate against so facile a solution. One of the reasons has been that whenever the disease progressed beyond the early stages, ambulatory or out-patient clinic care usually proved to be unsatisfactory. Hospitalization was necessary to mitigate the very conditions which prevent maximal responsiveness to therapy, i. e., unhygienic surroundings, malnutrition, inadequate and irregular treatment schedules.

Hospitals, however, are not willing or able to tie up their free beds for long periods with chronic cases. Few physicians, moreover, are interested in attending clinics where so lowly and offensive a disease is treated.

There is much about the disease that has baffled investigators and clinicians. How is it transmitted? Is there an ani vector like the mosquito in malaria or louse in typhus fever? Is it venerea origin? What is the nature of the ca organism? These and many more q tions about the disease remain u swered.

Progress, to be sure, has been m Workers at the University of Geo have learned to demonstrate the or ism in diseased tissues with deep l dyes and with silver reducing st These researchers tried futilely to g the organism on various enriched m They failed repeatedly in their atte to reproduce the disease in dogs, mice, guinea pigs, hamsters, and rab They were successful, however, in sol the question: Is the organism descr by Donovan the causal agent? The ease was reproduced in several volunt by injecting beneath the skin of the g a minute amount of a pure suspensio Donovan bodies obtained from an un tured bubo. Days went by and not happened. Then, during the fourth w a small nodule could be felt at the of inoculation. At the end of the week a soft localized mass, not unli bubo, appeared, from which there wa tained on aspiration a pure suspen of the organisms. By the seventh w characteristic lesions of soft, red, vel proud flesh developed. The disease successfully reproduced. The volunt were promptly cured. Donovan's o vations, at last, were corroborated, a step forward had been made.

Katherine Anderson, working in Goodpasture's laboratory at Vand University, has shown that the orga may be cultivated inside young, fe chicken eggs. This scientific contribu may throw much light on the mysteri this disease.

Possible solutions to the proble granuloma inguinale have been discu by the author with several physicians have studied and observed such pat for many years. The consensus is

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[2] For a review of recent experimental see also "Granuloma Inguinale: Strepto Therapy and Research," p. 183, in this is

uloma inguinale is a growing public
h problem.
has been suggested that each new
of granuloma inguinale be reported
e State health authorities as are other
municable diseases; not that this
dy may prove to be communicable
rigin, but that its incidence in any one community or any one State is an index of the sanitary conditions prevailing among a certain stratum of its populace. The disease can be eradicated. Its presence in such numbers in the United States is a reflection on the public health attitudes of our times.

Granuloma Inguinale: Streptomycin Therapy and Research [1]

ert B. Greenblatt, M. D.; Robert B. Dienst, Ph. D.; Herbert S. Kupperman, Ph. D., M. D.; and Cecil R. Reinstein, B. S.

sewhere in this issue the tragic so-
onomic aspects of granuloma ingui-
are considered. Contributing to the
nitude of the problem have been the
of proper facilities for the manage-
of such patients, the necessity of
onged treatment schedules, and the
equacy of the available therapeutic
mentaria.

is generally recognized that anti-
ials have been used with varying de-
s of success in the treatment of
uloma inguinale. Such antimonial
arations as anthiomaline, fuadin,
min, and tartar emetic are effective
n therapy is started in the early stages
he disease. The effectiveness of the
monials, however, decreases in direct
ortion to the chronicity of the infec-
(*1*). With the advent of the anti-
cs, renewed hope for a successful
apeutic agent was entertained. Peni-
n and tyrothricin proved valueless.
as surmised that streptomycin, too,
ld prove ineffective.

hrough the auspices of the United
es Public Health Service, strepto-
in was made available for trial to
University of Georgia School of Medi-
. The therapeutic results have been
arkable. Failures have been few in
ber. The incidence of recurrences will not be known until a follow-up of several years is effected. However, a note of optimism is warranted, for we have been witness to the miraculous healing in 2 to 3 weeks' time of extensive granulomatous lesions which have been present for periods of 8 to 10 years (*2*).

This report is a brief summary of the experiences of the past year gained by the University of Georgia group working on granuloma inguinale. Some of our therapeutic and experimental findings follow.

Clinical Considerations

Streptomycin in the Therapy of Granuloma Inguinale

The patients selected for the treatment of granuloma inguinale with streptomycin fell into the following categories: (*a*) Patients who had not received any form of specific therapy. In many of these the lesions were of relatively short duration, i. e., less than 6 months. (*b*) Patients who had responded to supposedly adequate antimonial therapy but in whom relapses had occurred. (*c*) Patients who had been inadequately treated over a period of many years and who had become chemoresistant.

In all 58 patients of this series, Donovan bodies were demonstrable either in smears or biopsy section (*3*) before the institution of streptomycin therapy. Table 1 shows data on treatment and

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ided by a grant from the U. S. Public
th Service to the University of Georgia
ol of Medicine, administered by Robert B.
nblatt, M. D., and Robert B. Dienst, Ph. D.

TABLE 1.—*Treatment and follow-up of patients*

Patients treated		Average total dose streptomycin (gm.)	Average length of treatment (days)	Average healing time after therapy (weeks)	Follow-up	
Sex	Number				Percent of total patients treated	Aver peri follov (weel
Male	39	20.6 (3.6 to 60)	13.7	2.5	76.9	
Female	19	21.4 (3.3 to 94)	14.3	3.0	68.4	
Total	[1] 58	20.9 (3.3 to 94)	13.9	2.7	74.2	

[1] A fifty-ninth patient not included in this series had typical lesions of granuloma inguinale. Response gm. of streptomycin administered over a period of 5 days was excellent. Donovan bodies could not be de strated in the lesions of this patient, but were demonstrable before antimonial therapy was administered b referring agency.

follow-up of patients. All patients were Negroes and ranged in age from 19 to 70 years. Males predominated in the ratio of 2 to 1. Regardless o fthe category into which the patients fell, the response to therapy was more or less uniform.

A fifty-ninth patient was not included in this series because Donovan bodies could not be demonstrated in spite of the characteristic lesions. Just before admission to our wards, this patient had been treated with antimonials by the referring agency, and Donovan bodies had been found by the agency before its therapy was started. A remarkable response to streptomycin was noted in this case.

Dosage.—The dosage employed ranged from a total of 3.3 gm. to 94 gm. The drug was given intramuscularly in divided doses every 4 hours for a total of 0.3 gm. to 4 gm. per day. At first the dosage employed was purely empirical. In general it appeared that 20 gm. of the drug was adequate as total treatment. Later in the series, a more uniform procedure was employed whereby 4 gm. of streptomycin was administered per day for a period of 5 days for a total dose of 20 gm. The purpose of this regimen was to provide a rapid, relatively economical, and effective method of treatment. Although some patients were healed with as little as 5 gm., the larger dosage over a short period of time was employed with the hope of preventing the development of Donovan-body res ance to streptomycin. This treatm schedule was followed in 23 patients. cause of the extensiveness of the gra lomatous processes, it was thought visable to carry on therapy for a lon period of time in 3 other patients, i 4 gm. per day for 10, 10, and 13 days, spectively.

Toxic effects.[2]—Involvement of eighth nerve was not observed. We w dependent, however, upon the subjec symptoms, since objective tests were performed. Toxic reactions, consistin pruritus, were noted in four patie One of these patients, in addition to pruritus, exhibited an urticarial der titis of the extremities and trunk an perioral vesicular eruption. This pati did not respond to benadryl, as did others, and the antibiotic was discon ued. With the rapid mode of thera febrile reactions were noted in over percent of the patients, but these usu subsided by the third or fourth day.

---

[2] EDITOR'S NOTE: Additional informatio the toxicity of streptomycin will be made av able to the clinician as the drug is m widely used and studied. An abstract is p lished in this issue (p. 198) which pres an investigation conducted on a group tuberculous patients, but which may be plicable to the toxicity of the drug in disease. In the August issue of the JOUR OF VENEREAL DISEASE INFORMATION (p. 1 an abstract of another article appeared the pharmacology of streptomycin.

Response.—The clinical response was pid. Patients volunteered subjective provement within 24 hours after the titution of therapy. Objective evidence healing was noticed in 48 to 72 hours. ose patients treated with 4 gm. for 5 ys usually showed complete healing m one to two weeks after cessation of rapy. The patients with very exten- e lesions responded similarly, except minor residual areas which progressed eventual healing within a few weeks hout additional therapy. It might be led that extragenital lesions (four es) healed more rapidly than those in genital area.

Daily smears from the lesions showed t Donovan bodies disappeared in about ays, on the average, after the initiation therapy.

Relapses.—Relapses occurred in four ients. The total doses employed in se cases were 3.3, 3.6, 28, and 40 gm., pectively. The two patients who re- ved less than 4 gm. were re-treated th 32 and 44 gm., respectively. Com- te healing followed, and to date no dence of recurrence has been noted. e patient who had a recrudescence of lesions after receiving 28 gm. was en a second course of therapy of 94 . This patient, however, became re- ctory to the antibiotic, since healing led to occur. She was then placed on thiomaline, and a marked degree of provement followed. But further heal- seems to be arrested in spite of con- uous therapy with antimony com- nds. The fourth patient showed only moderate degree of healing after 40 gm. streptomycin, although Donovan bodies d completely disappeared from her le- ns. Recheck of the patient 7 weeks er therapy, however, showed that novan bodies had reappeared. A ond course of therapy is soon to be rted.

sospirochetosis in Patients with Granuloma Inguinale

Fusospirochetes frequently contami- te granulomatous lesions. Penicillin s administered (1 dose of 300,000 units penicillin-oil-beeswax mixture) to three such patients. The organisms disappeared 24 to 48 hours after the injections. Streptomycin in the doses employed to eradicate Donovan bodies from the granulomatous lesions appeared ineffective. The fusospirochetes usually persisted for as long a time as open lesions existed and disappeared only as complete healing took place.

In view of the effectiveness of niacin in the treatment of "black tongue" (a fusospirochetal infection in dogs), this drug was tried in five patients. One hundred milligrams was administered orally every 3 hours for several days. In one patient fusospirochetes were temporarily eliminated but these soon recurred in spite of the continuation of therapy. Niacin proved totally ineffective in the other four patients.

Experimental Considerations

Studies were made on the isolation and culture of Donovan bodies in order to (1) confirm the work of Anderson and Goodpasture, (2) obtain material for studies on the viability of the Donovan body and the effectiveness of bacteriostatic and bacteriocidal agents on this organism, and (3) investigate the nature and taxonomic position of the Donovan body (*4*).

Isolation and Culture

A small piece of tissue was removed from a typical granulating lesion and divided into 3 portions for study. The patient had been treated 2 days prior to biopsy with 300,000 units of penicillin per day.

Portion 1.—The tissue fragments were shaken in 10 changes of sterile distilled water to reduce surface contamination. The washed tissue was ground in a sterile mortar without the use of an abrasive, and dilutions made from 1:10 to 1:640 with sterile water. The yolks of 6-day-old chick embryos were inoculated with 0.25 cc. of tissue dilutions from 1:10, 1:20, 1:40, 1:80, 1:160, 1:320, and 1:640. Fourteen eggs were injected; 2 eggs with each dilution. Only 2 embryos of this series, 1 of 1:40 and the other of 1:80 dilution, showed Donovan bodies in the yolk-sac spreads when stained by Wright's stain. Subcultures of blood agar demonstrated that the Donovan bodies were not contaminated with bacteria. The infected embryos appeared normal when sacrificed for examination on the eighth day following inoculation. All other embryos apparently died from bacterial contamination within 72 hours after inoculation.

Portion 2. — Fragments of tissue, washed in 10 changes of sterile distilled water, were teased into smaller bits and smeared on extract agar slants. These were incubated for 48 hours and bits of tissue showing no visible growth on the slants were removed and further macerated with sterile saline. The yolks of twelve 6-day-old chick embryos were each inoculated with 0.25 cc. of the tissue emulsion. Only one embryo of this series survived beyond the fifth day. This embryo, opened on the eleventh day following inoculation, showed both Donovan bodies and contaminating bacteria (diphtheroids). No effort was made to isolate the Donovan bodies from the bacterial contaminant.

Portion 3.—The tissue fragments were first washed by shaking in 10 changes of saline containing 100 units of penicillin. Bits of tissue were then macerated in 100 units of penicillin and smeared on agar slants to be incubated for 48 hours at 37° C. Tissue harvested from the slants were macerated with sterile saline. Each of eight 6-day-old chick embryos was inoculated in the yolk with 0.25 cc. of the prepared tissue. Six of the embryos in this series died, apparently from bacterial contaminants, within 72 hours after inoculation. However, 1 egg opened on the eighth and 1 on the eleventh day following inoculation showed Donovan bodies without contamination. Yolk sac of the egg opened on the eighth day was especially rich in Donovan bodies, and this isolation, designated as strain G–3 for purposes of record, was subcultured through 6 passages. Passage from egg to egg was with 0.5 cc. of a 1:1 saline dilution of macerated infected yolk sac. Six-day-old chick embryos were used for passage and were opened on the eight day following inoculation.

The morphology of the Donovan bodie cultivated in yolk-sac cultures conforme to those described by Anderson and Be eridge (*5, 6*). Transplants of yolk-sa cultures never appeared to grow on bloo agar plates. This cultural feature of Do ovan bodies was used routinely to dete mine presence of bacterial contaminatio in egg passage.

Human Inoculation

Tissue biopsy.—It has been shown b previous studies that typical lesions granuloma inguinale could be produce in human beings by auto-inoculation (7 This was confirmed by transplanting su cutaneously a small piece of granulati tissue from the right inguinal lesion the extensor surface of the middle thi of the left thigh of a volunteer Negro ma An area of induration was noticed at t site of implantation 8 days following aut inoculation. The area over the tiss transplant became fluctuant on the fo tieth day and was aspirated. Numero Donovan bodies were demonstrable in t stained smears of the exudate. Finally typical granulating lesion developed this site.

Tissue filtrates.—Fragments of the ori inal tissue obtained at biopsy for aut inoculation were ground in a sterile mo tar without the use of an abrasive an diluted 1:5 with sterile saline. This ma terial was filtered through a Berkefeld candle and the filtrate cultured for ste ility on blood agar. One cubic centimete of the filtrate was inoculated subcutan ously in the left thigh of the patient, a proximately 6 inches above the infecte tissue transplant. No evidence of infe tion occurred at this site during the 7 days of observation.

Several 6-day-old-chick embryos inoc lated in the yolk with the filtrate faile to show demonstrable evidence of infe tion with either Donovan bodies or ba teria. Blind passage of the yolk sac int several additional eggs also failed to r veal the presence of any micro-organism

Additional studies were made on fil

es prepared in various manners from nulomatous tissues. Material from patients, shown to be rich in Donovan lies, was ground with and without asives, filtered through graded Berke- l and Seitz filters, and diluted with rile isotonic saline, Tyrode's solution, l distilled water. Cultures on a va- ty of bacteriologic media failed to pro- e growth of any micro-organisms. k-sac cultures of each inoculum were ative following original inoculation l blind passage.

olk-sac culture.—One cubic centimeter yolk-sac culture was inoculated subcu- eously in the left inguinal region of Negro volunteer, adjacent to his scro- n. The material used for inoculation s a 1:1 saline dilution of strain G–3 er third passage in embryonic yolk sac. e site of inoculation was observed ily. A small nodule was formed when culture was first inoculated. This lule increased in size very slowly until gically removed for examination on sixtieth day following injection of ture. Smears made from the tissue monstrated the presence of typical novan bodies. This finding was con- med by pathologic report stating that onovan bodies were observed in the all section of lymph node submitted examination.

imal Inoculation

Attempts were made to produce lesions hamsters and in mice with material tained from granulomatous lesions rich Donovan bodies. Inoculations were de subcutaneously and intradermally to the inguinal region of 3 hamsters. riginal contaminated tissue, serially nsed tissue, and tissue treated with 100 nits of penicillin inoculated by tissue ansplants failed to produce demonstrable lesions or to yield Donovan bodies fter 14 days.

Additional inoculations were attempted scarifying the foot pads, the penis be- eath the prepuce in the male, the peri- eal space and labia of the female—with needle and by rubbing in the inoculums. No "takes" were obtained in any of these experiments.

Similar experiments were attempted in mice. Material was used containing Donovan bodies and freed of bacterial contamination by the methods utilized for cultivation in the yolk sac of developing chick embryos. Bacteria-free inoculums injected subdurally and intracranially into mice failed to produce lesions, and the Donovan bodies disintegrated rapidly. Impression slides of the brains of mice sacrificed 72 hours after inoculation failed to show typical bodies. Slides made 120 hours after inoculation did not show degeneration bodies which were evident on disintegration of the Donovan bodies. In the presence of contaminating bacteria, multiplication of Donovan bodies in mouse brain following intracerebral inoculation has been observed. Further work on this study is in progress.

Fate of the Donovan Body Following Antimonial and Streptomycin Therapy

Semiweekly smear studies were made on the lesions of clinic patients treated with antimony compounds. Daily smears were made on patients receiving streptomycin therapy. The effect of various types of treatment on the morphology and number of Donovan bodies as seen in tissue spreads deserves more space than is available in this brief résumé.

In general it may be said that the characteristic appearance of spreads of the lesion following antimony therapy is first that of fragmentation of the normal Donovan bodies without any marked reduction in their number. Normal bodies are found abundantly extracellularly with intracellular bodies appearing atypical in size and morphology in regard to the nucleo-cytoplasmic ratio. The cytoplasm or capsular material is reduced in size, and the deeply staining nuclear material is delicate but sharply defined. The general appearance of intracellular bodies in lesions clinically responding to therapy is sometimes strikingly similar to the organisms seen in the yolk-sac culture.

In contrast to this picture, the response of the Donovan body to streptomycin is marked. The Donovan body does not fragment or decrease in gross size and appearance. The nuclear substance, however, rapidly loses its normal staining characteristics and appears to be wholly comprised of the remaining capsular material, which retains its normal form, size, and shape. Intracellular "degeneration bodies" which have lost their normal staining reaction disappear rapidly, giving the impression of a more rapid diminution of total bodies present.

Conclusions

1. Experience gained in the treatment of 59 patients with granuloma inguinale by the use of streptomycin permits the conclusion that this antibiotic is the most effective drug available and is far superior to the antimonials.

2. Follow-up studies will require several years, and it is too early to evaluate completely this method of treatment. The posttherapy period of observation ranges from a few weeks to 7 or 8 months. There have been four recurrences. In two, therapy was inadequate (less than 4 gm.), and the patients responded to a second course. A third patient became streptomycin resistant (28 and 94 gm.), and has been placed on antimony therapy with relatively poor results. In a fourth patient Donovan bodies have reappeared in the unhealed lesions after 40 gm. of streptomycin.

3. A therapeutic regimen of 4 gm. per day for 5 days (20 gm.) has proved both adequate and convenient. Although lesions may still be present after discontinuation of therapy, progressive healing takes place. Complete healing is noted within the following 1 to 3 weeks.

4. Toxic reactions have been few and mild in nature.

5. Streptomycin is not immediately effective, but penicillin is effective against fusospirochetes that are present as contaminants in granuloma inguinale.

6. Following streptomycin therapy Donovan bodies disappear and disintegrate rather rapidly (average, 6 days); whereas, following antimony therapy fragmentation of the Donovan bodies without
duction in numbers occurs early,
decrease in numbers occurs eventua

7. Donovan bodies were isolated in p
culture from a Negro patient with cli
cal symptoms of granuloma inguinale a
grown by repeated transplants in the y
sac of developing chick embryos.

8. A typical lesion of granuloma
guinale was experimentally produced i
volunteer Negro man by transplantin
small piece of tissue from a lesion in
right inguinal region to the left thi
No infection occurred at the site of
trate injection. The filtrate was prepa
from a portion of the tissue used for au
inoculation.

9. Characteristic Donovan bodies w
demonstrable at site of injection in a
tient 60 days after inoculation of yo
sac culture.

References

1. Greenblatt, R. B.: Management of cha
roid, granuloma inguinale, and lymp
granuloma venereum in general pr
tice. Ven. Dis. Inform. (supp. 1
1943.

2. Greenblatt, R. B.; Kupperman, H.
Dienst, R. B.: Streptomycin in t
therapy of granuloma inguinale. Pr
Soc. Exper. Biol. & Med., 64: 389–3
1947.

3. Pund, E. R.; Greenblatt, R. B.: Speci
histology of granuloma inguina
Arch. Path, 23: 224–229, 1937.

4. Dienst, R. B.; Reinstein, C. R.; Kuppe
man, H. S.; Greenblatt, R. B.: Studi
on the causal agent of granuloma
guinale. Am. J. Syph., Gonor. & Ve
Dis. (In press.)

5. Anderson, K.: Cultivation from gran
loma inguinale of a microorganis
having characteristics of Donov
bodies in the yolk sac of chick embry
Science, 97: 560–561, 1943.

6. Beveridge, W. I. B.: The action of an
mony and some other bacteriostat
substances on Donovania granulomat
isolated in the chick embryo. J. I
munol., 53: 215–223, 1946.

7. Greenblatt, R. B.; Dienst, R. B.; Pun
E. R.; Torpin, R.: Experimental a
clinical granuloma inguinale. J.
M. A., 113: 1109–1116, 1939.

Notes on the Epidemiology of Granuloma Inguinale

Charles Walter Clarke, M. A., M. D., F. A. C. P.[1]

hether Donovan bodies are the causa- organisms of granuloma inguinale been debated since 1905. The recent k of Anderson (*1*), Greenblatt (*2*), their co-workers is regarded by some estigators as the answer to this ques- n. A report of further experimental k by Greenblatt (*3*) appears in this ue and describes the research whereby organism was successfully cultivated he yolk of developing chick embryos, whereby the disease was reproduced human volunteers.

f this basic problem may be considered solved, then the prospect of further gress in methods of diagnosis and atment is very encouraging. In the t, few if any aspects of this recal- ant, disabling disease have been arly understood or agreed upon. It is wn that granuloma inguinale some- es becomes systemic and a direct cause death. No one is certain that it is a mmunicable disease, and if so, how it spread. The epidemiology remains al- st entirely unexplored; prevalence and idence have been merely estimated, l consequently there can be no ade- ate estimation of the costs in relation the victim, his family, and his com- nity.

reenblatt, one of the few persistent l productive students of granuloma in- nale, is convinced that there are at st 10,000 cases in the United States.

Distribution

he study herein outlined was under- en in the hope of adding to the present owledge of the epidemiology of the dis- e. Information was requested from ate and Territorial health departments ncerning: (1) the legal requirements for reporting granuloma inguinale, (2) the number of cases reported in recent years, and (3) the distribution of reported cases by color and sex in 1943. All State and Territorial health departments except Alaska, Maine, New Mexico, and South Carolina provided information on one or more of the questions.

The obligatory reporting of granuloma inguinale to the local health authority "is not ordinarily considered justifiable by benefits to the public," according to the revised report (1945) (*4*) of a committee of the American Public Health Association on the control of communicable diseases, and officially approved by the United States Public Health Service. However, since granuloma inguinale is, rightly or wrongly, generally considered a communicable disease, and since it is a serious and by no means a rare condition, it seems reasonable to expect that the public health laws or regulations of all jurisdictions would make this condition reportable.

Of the 48 jurisdictions which replied to questions presented by this study, 32 require reporting of granuloma and 16 do not require it. Of the 32 States and Territories requiring reports within their jurisdictions, 21 have instituted this measure since January 1, 1940. Some States have encouraged voluntary reporting by including granuloma inguinale in their venereal disease report form. The Georgia Department of Public Health provides fuadin for treatment of cases reported voluntarily. Certain States have long had reporting laws or regulations but few cases have been reported therein, evidently because the incidence is very low in their areas. Or perhaps existing cases are incorrectly diagnosed, are called by the wrong name, are not reported at all, or the infected persons do not seek medical care. At the time these data were collected, wartime delays made figures unavailable or incomplete in many areas.

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The available information gathered for the period 1940 through 1944 shows that granuloma inguinale is far more prevalent in the southeastern States, but is also found in all other geographic areas of the United States. Of the 1,687 cases reported by 23 States and Territories for the year 1943 (the most representative year for which information was accessible to this study) all but 450 were in the States along the Gulf of Mexico from Louisiana at the mouth of the Mississippi River eastward to the Atlantic. The literature on the subject reveals that the disease is more prevalent in the tropics and subtropics, but is found in virtually all climates.

Individual venereal disease clinics in certain cities and counties sent reports of cases of granuloma under treatment in 1944. One Alabama county health officer (*5*) remarked: "This (granuloma inguinale) is a rare condition in this county." It is by no means rare in the State, however, for 100 cases were reported by Alabama in 1943. Texas does not require reporting of granuloma, but it is a common disease in that State as indicated by the fact that there were 29 cases reported from 4 clinics in 4 cities in 1944.

In States having active programs for the eradication of granuloma inguinale, an upward trend is noted in the number of reported cases. This does not necessarily mean an increase in incidence. In Florida and Mississippi, 2 States with highly developed interest, the increase in reported cases is attributed to better knowledge of the disease on the part of physicians, better diagnostic procedures, and better reporting of cases. In many States there is probably a large reservoir of unrecognized, neglected cases awaiting medical and public health attention.

Distribution by color and sex.—Information was collected on racial distribution of cases of granuloma inguinale reported during 1943. Of the total cases reported by 20 States with information on race, 1,387 or 92 percent were nonwhite, and 121 or 8 percent were white persons. It is evident that granuloma inguinale is far more prevalent amo Negroes, but contrary to repeated sta ments in the literature, it is not ra among white persons.

Not all of the data for this study su plied a break-down for both color and se A tabulation of 785 cases reported by States for 1943 shows more males th females, although the difference is n significant. Of the total, 458 or 58 p cent were males, and 327 or 42 perce were females.

These percentages are supported by t United States Public Health Service m bidity report for the fiscal year of 19 For this period, 2,204 cases of granulo inguinale were reported, of which 58 p cent were males. It is interesting to n in this later and more inclusive morbid report that the percentage of white cas is 12 percent. Table 1 gives addition data from Federal sources for the fis years 1943 to 1947.

Military data.—Through the court of Lt. Col. Onis G. Hazel, MC, AUS, special study was made of the records the Third Air Force, which may thr light on the incidence of granuloma guinale as compared with other vener diseases in a specified group. Under t supervision of Dr. Hazel, a compete venereal disease service was maintain in the Third Air Force and the diagnos procedures were dependable. Exami tion of the case records for venereal d eases acquired by Negro troops over period of 17 months revealed that the were 1,940 cases of gonorrhea, 682 cas of syphilis, 234 cases of chancroid, 84 cas of lymphogranuloma venereum, and cases of granuloma inguinale. Granulo inguinale constitutes 2.4 percent of t total infections.

Is Granuloma Inguinale a Venereal Disease?

A study of the literature and of t opinions of many physicians and heal officers shows a consensus in favor classifying granuloma inguinale as venereal disease in the sense that it believed to be spread mainly by sexu intercourse. When subjected to analys

LE 1.—*Reported cases*[1] *of granuloma inguinale in continental United States, fiscal years 1943–47*

[Known military cases are excluded]

Fiscal year	Total	White			Nonwhite		
		Total	Male	Female	Total	Male	Female
4	1,746	226	169	57	1,520	947	573
	1,758	160	121	39	1,598	982	616
	1,846	164	83	81	1,682	1,018	664
	2,204	268	179	89	1,936	1,107	829
	2,400	220	190	30	2,180	1,290	890

eported cases are about 90 percent nonwhite, 60 percent male.
stimated on the basis of data for the first 6 months.

irce: Form 8958-B. USPHS—Venereal Disease Division, Office of Statistics, July 9, 1947.

opinion appears to be based on three ervations: (1) the disease occurs in ially promiscuous persons; (2) the ons are usually on or near the geni- a; and (3) it is often concurrent with er diseases known to be venereal.

gainst the view that granuloma in- iale is a venereal disease, a few ters have pointed to the supposed ty of the disease in white persons and emales, and particularly to the obser- ion that examination of sexual part- s of granuloma inguinale patients ely reveals this disease. The eminent nch dermatologist, Dr. Henri Gou- ot, does not believe that it is venereal. reports three cases in which the nary lesions were in the depths of the ls of the groin, not on the genitalia; re had been no "venereal contact" for eral years (*6*).

t is true that granuloma inguinale urs in sexually promiscuous persons, it occasionally occurs in those who not promiscuous; and even among the miscuous it is not highly prevalent in sense that gonorrhea, for instance, is valent.

he primary lesion of granuloma is usu- on the genitalia, in those few early es which come to attention. However, st cases are not seen until long after primary lesion, wherever it was, has n followed by inguinal ulceration or eration elsewhere in the genital or ineal areas. The mere fact that a on is on the genitalia does not prove t it was acquired by sexual contact. Thus, we do not classify herpes progenitalis or verruca acuminata as venereal diseases. Nor do we consider fistula in ano necessarily a result of pederasty.

Some completely extragenital early lesions have been observed, as, for example, one seen by Schoch (*7*) in Dallas—a lesion which developed at the site of a surgical wound on the leg.

Shattuck (*8*) in 1923 reported a case of a male child, aged 2, who developed at the site of a circumcision wound a lesion which this experienced clinician believed to be granuloma inguinale. A case of anal granuloma inguinale developed in a white male, aged 35, apparently as a result of scratching a persistent itching irritation of the anus (*9*). In neither of these lesions were Donovan bodies found, but the cases were diagnosed as granuloma inguinale on the basis of clinical and, in the anal case, of pathologic findings.

A question has been raised as to whether granuloma inguinale is from its inception a clear-cut, separate disease or a condition superimposed on some other preexisting disease, such as chancroid. According to this latter conception, Donovan bodies enter a preexisting lesion and develop there the typical clinical and pathologic picture of granuloma inguinale. This may be true, but granuloma inguinale can and does develop when no other venereal disease is present, as in Schoch's case and in the work of Greenblatt (*2*), who produced the early lesions experimentally in human volunteers.

As has frequently been stated in the

literature and as has been shown in this study, there are marked differences in the racial distribution of granuloma inguinale. The fact that the disease is more prevalent among Negroes has sometimes been used to support the theory that granuloma is nonvenereal. It does not seem that this aspect can thus be used, any more than in syphilis, a venereal disease which is also much more prevalent among Negroes than among white persons. Furthermore, the idea of special susceptibility of Negroes, or unsusceptibility of white persons, may not be supported by the significant differences in racial distribution, but this idea deserves and is receiving additional study.

It has also been noted in the literature that more males than females have the disease. If granuloma inguinale is in fact spread by sexual contact, one may expect to find the disease widely distributed among both sexes. It has already been shown in this study that the difference between the number of cases found in the two sexes is not significant.

The main argument cited by clinicians against classifying granuloma inguinale as a venereal disease is that it has rarely been found in the sexual partners of known cases. The literature cites very few examples of infected sexual partners, and in these the epidemiologic details are not definite. There are many records indicating that patients with extensive lesions in which numerous Donovan bodies have been found have had frequent coitus with a sexual partner over a long period of time; and when examined, the sexual partner has been found not infected. This experience has been so general that many health officers assert that the epidemiologic investigation of contacts of granuloma inguinale is a waste of time and money. Agee (*10*) of the Louisiana State Department of Health states, "I have personally seen a case of granuloma inguinale with positive Donovan bodies both before and after long interruption of treatment; and his wife, after 2 years of unprotected sexual intercourse with this patient with a small lesion on his penis, had no sign of granuloma i guinale. If this is a venereal disease even a communicable disease, it mu have a very long incubation peri or else many individuals must not susceptible."

Huggins (*11*) of Trinidad, British We Indies, states, "Marital partners of typic cases of active granuloma inguinale a parently remain uninfected in spite of r peated unprotected exposure. Granulon inguinale does not appear to be highly i fectious but it is certainly one of the mo dreadful venereal diseases."

Reports of infected sexual partners patients with granuloma inguinale a rare, but not unknown in the literatur Kornblith (*12*) recently reported on tv Negro patients in New York City: t male had a lesion on the penis and in t inguinal area; the female, a sex partne had a lesion in the wall of the vagin The time relationship of the developme of these lesions was not given.

Scott (*13*), referring to a granulon inguinale infection in a colored female a possible instance of concomitant gran loma inguinale in a sexual partner, say "Eleven weeks previously she had h her last sexual exposure with a compani on whom she had noticed a red peni sore. Four weeks later the patient d veloped a small vulvar ulcer which gre progressively worse." The "red peni sore" may have been the initial lesion granuloma inguinale. So far as is know however, the male contact was not e amined.

Ross (*14*) of Arkansas reports, "R cently we have had two cases (colore females) whose sexual contacts were al found to have granuloma inguinale. O recent case had three contacts who al had granuloma inguinale." From t venereal disease clinic in Hinds Count Miss. (*15*), came the following: "We ha one familial case of granuloma inguina (husband and wife). First case I kno of." Didwyler (*16*) of Cleveland, Miss reports, "Have two cases in which gran loma inguinale appeared in contact They were husband and wife."

Granuloma Inguinale Infectious?

he great majority of cases of granu-
a inguinale coming to attention in
ics are of long standing—often of
y years. The clinical experience is
Donovan bodies cannot easily be
d in the superficial exudate of the
rated area. There is reason to be-
that this exudate is not highly in-
ious and that contact with it in coitus
not often result in infection. To find
Donovan bodies one must remove the
late and debris, and scrape the depth
he ulcer. Even then it is not always
to find Donovan bodies. One may
to take a biopsy specimen and per-
bacteriologic and pathologic exam-
ions. It is not surprising that in old
s, granuloma inguinale does not
ad to sexual partners.

has sometimes been assumed, as al-
ly stated, that granuloma inguinale is
infectious or only slightly so, because
acts have seldom been found infected.
ther and perhaps more acceptable ex-
ation may be that although granu-
a inguinale is not highly infectious in
late stage when extensive lesions are
ent, it may be infectious in the com-
atively brief early stage. The so-
ed primary sore of granuloma ingui-
begins as a small, painless, button-
lesion. This may well be the most,
even the only, infectious stage of
disease. After the primary sore pro-
sses to ulceration and becomes con-
inated with many organisms in addi-
to Donovan bodies, there may be
e or no danger of transmitting infec-
.

nother possibility is that some or per-
s many persons are not susceptible to
ction. In this respect, granuloma in-
ale possibly resembles leprosy, and
eptibility may be an inherited char-
ristic.

ne thing is certain. In few places is
npt epidemiologic investigation made
ontacts of granuloma inguinale. Even
otherwise excellent venereal disease
trol services, little attention is gener-
paid to the epidemiology of this
disease. No adequate study has ever been made, so far as is known, and consequently the epidemiology of this destructive and expensive disease remains obscure.

Incubation Period

Another unsolved mystery of granuloma inguinale is its incubation period. No one knows its shortest, longest, or average incubation period. Statements in the literature, often followed by a question mark, are confusing and contradictory. Pariser and Beerman (*17*) mention 2 days to 3 months. Greenblatt (*18*) mentions 8 days to 12 weeks, and adds that in his human experimental work it was difficult to determine the incubation period. A pamphlet published by the New York City Department of Health (*19*) gives as the incubation period "about 3 weeks(?)."

The material provided for this study by Dr. Hazel gives the incubation periods for 60 of the 73 cases reported in the Third Air Force. These periods range from 3 to 119 days, and can be grouped as follows:

Incubation (days)	*Number of cases*
3 to 10	12
11 to 20	16
21 to 30	19
31 to 40	8
41 to 50	1
51 to 60	2
75	1
119	1
Total	60

Of the 60 cases, all except 5 developed in 3 to 40 days. This is less of a range than the known incubation period of syphilis, which varies from 10 days to 10 weeks.

The incubation period is usually set down as the time that it takes after inoculation for the disease to develop to a point where the patient notices a lesion, plus the time that elapses before the patient becomes sufficiently worried to go to a physician. In the study, "Chancres

Studied from the Public Health Point of View" (*20*), it is shown that 50 percent of 971 patients with syphilis chancres waited at least 30 days after they noted the lesion before they went to a physician. Morever, 7 percent waited more than 100 days before seeking a diagnosis. The same delay undoubtedly occurs in cases presenting the early lesion of granuloma inguinale, which, like the chancre, unfortunately is not painful.

The whole question of the incubation period deserves careful scientific study, which it has not had up to this time; but for the present, minimum and maximum periods of 3 to 40 days are suggested as a working assumption for the incubation period.

Conclusion

There are many problems to be solved concerning the epidemiology of granuloma inguinale. As a serious, crippling disease, it deserves extensive research. The facts and speculations outlined in this study are presented to emphasize certain questions which need to be answered and to urge broader and more cooperative research on all phases. In its late stages, granuloma inguinale is expensive to the victim in terms of lost earning capacity, and to his community in terms of prolonged medical care. Some recent developments warrant encouragement that the disease may soon be more generally recognized, more efficiently treated and controlled in the early stage—the most effective means of lessening the costs and seriousness of any disease.

References

1. Anderson, De Monbreun, W. A.; Goodpasture, E. W.: An experimental investigation of the etiology and immunology of granuloma inguinale. Am. J. Syph., Gonor. & Ven. Dis., 29: 165–173, 1945.
2. Greenblatt, R. B.; Dienst, R. B.; Pun E. R.; Torpin, R.: Experimental ai clinical granuloma inguinale. J. M. A., 113: 1109–1116, 1939.
3. Greenblatt, R. B.: Dienst, R. B.; Kuperman, H. S.; Reinstein, C. R Granuloma inguinale: streptomyc therapy and research. J. Ven. D Inform., 28: 183–188, 1947.
4. The control of the communicable disease Report of a committee of the Americ Public Health Association. Reprint N 1697 from the Public Health Report (Revised 1945.)
5. Personal communication.
6. Gougerot, H.; Cohen, R.: Phagedinisn de MacLeod—Donovan (des plis) ou s disant venerien ulcere vegetant des o ganes genitaux, granuloma inguinal Arch. Dermat. & Syph. de la Cliniq de l'Hopital St. Louis, 5: 30–45, 193
7. Personal communication.
8. Shattuck, G. C.: Granuloma inguinale i Boston. Boston M. & S. J.: 188: 53 532, 1923.
9. Case record at the Peter Bent Brigha Hospital, Boston.
10. Personal communication.
11. Personal communication.
12. Kornblith, B.: Granuloma inguinal Arch. Dermat. & Syph., 50: 274–27 1944.
13. Scott, R. B.; Lyford, J., III; Johnso R. W., Jr.: Granuloma inguinale a cause of arthritis and osteomyeliti Report of a case. Bull. Johns Hopki Hosp., 74: 213–217, 1944.
14. Personal communication.
15. Personal communication.
16. Personal communication.
17. Pariser, H.; Beerman, H.: Granuloma inguinale. Am. J. M. Sc., 208: 547–55 1944.
18. Greenblatt, R. B.: Management of chancroid, granuloma inguinale, and lymphc granuloma venereum in general pra tice. Ven. Dis. Inform. (supp. 19), 1 43, 1943.
19. Department of Health, New York City Diagnosis and treatment of chancroic granuloma inguinale, and lymphogranuloma venereum. 1944.
20. Clarke, C. W.: Chancres studied from public health point of view. Ann. Int Med., 13: 928–939, 1939.

CURRENT LITERATURE

NOTE: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the past 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

A DERMAT.-VENEREOL, STOCKHOLM

creasing chemoresistance in gonorrhea. O. Nørgaard. 27 : 123, 1946. (Abstracted in J. A. M. A., Chicago, 133 : 1248, Apr. 19, 1947.)

SKA'S HEALTH, JUNEAU

yphilis serodiagnostic tests. Ralph B. Williams. 5 : 1, Feb. 1947.

J. DIS. CHILD., CHICAGO

Effect of penicillin in the treatment of infantile congenital syphilis. Further observations. R. V. Platou, Allan J. Hill, Jr., Norman R. Ingraham, Mary S. Goodwin, Earle E. Wilkinson and Arild E. Hansen. 72 : 635–648, Dec. 1946.

ffect of penicillin in the treatment of antile congenital syphilis. Further ervations. R. V. Platou, Allan J. Hill, Norman R. Ingraham, Mary S. Good-, Earle E. Wilkinson and Arild E. nsen. Am. J. Dis. Child., 72: 635–648, 6.

he authors report on 122 additional es of manifest congenital syphilis in ldren under 2 years of age treated by university groups at New Orleans, ladelphia, Baltimore, and Galveston, nging the total number now suitable analysis to 191. Pretreatment studies e been adequate, and no therapy other n intramuscular injection of penicillin been used. Total dosages have ged from 770 to 150,000 units per kilo- m of body weight.

Results included early effects on clin- l lesions; in no case were positive re- ts on darkfield examination secured ond 24 hours after initiation of treat- nt. The percentage of negative sero- ic results increased progressively with the length of observation period following treatment: from 7.9 percent among 177 observed for less than 2 months up to 92.3 percent of the small number followed beyond 18 months. Among 191 infants, clinical relapse together with serologic relapse was encountered 5 times (2.6 percent); in none of these was reinfection suspected.

Analysis indicates that satisfactory results were secured in almost 90 percent of infants treated with 40,000 units or more per kilogram of body weight as contrasted with 74 percent treated on smaller dosage schedules. Twenty-four infants died during or after treatment with penicillin, although in 5 infants, death was unrelated to use of the drug. Five deaths occurred during therapy of such obvious causes as bronchopneumonia or prematurity, for instance.

The authors conclude that penicillin is the best single agent for the treatment of infantile congenital syphilis, but in the light of additional observations over a period of 5 months, they recommend dosage schedules of 100,000 units per kilogram of body weight, given in 120 equal intramuscular injections at 3-hour intervals for 12 to 15 days.

AM. J. MED., NEW YORK

Streptomycin treatment of urinary tract infections. With special reference to the use of alkali. H. William Harris, Roderick Murray, Tom F. Paine, Lawrence Kilham and Maxwell Finland. 2 : 229–250, Mar. 1947.

Streptomycin. General considerations, tests for bacterial sensitivity and methods of measurement of streptomycin in body fluids. Wallace E. Herrell and Fordyce R. Heilman. 2 : 421–428, May 1947.

AM. J. ROENTGENOL., SPRINGFIELD

Cancer of the tongue. (Incidence of syphilis in this disease.) George S. Sharp and Harold D. Spickerman. 57: 181–198, Feb. 1947.

ARCH. DERMAT. & SYPH., CHICAGO

Cardiolipin-lecithin antigen. Recent development toward a single standard test of the blood for syphilis. B. S. Kline. 55: 514–524, Apr. 1947.

BUMED NEWS LETTER (U. S. NAVY DEPT.), WASHINGTON

The antibiotic subtilin. 9: 6–7, Mar. 28, 1947.

CANAD. NURSE, MONTREAL

New methods of treatment for venereal disease—syphilis. B. D. B. Layton, 43: 182–186, Mar. 1947.

CINCINNATI J. MED., CINCINNATI

*Triweekly arsenotherapy. A safe and effective ambulatory treatment regimen for early syphilis. Alfred L. Weiner. 28: 301–320, May 1947.

Gains in combating v. d. Editorial. 28: 342–345, May 1947.

Triweekly arsenotherapy. A safe and effective ambulatory treatment regimen for early syphilis. Alfred L. Weiner. Cincinnati J. Med., 28: 301–320, 1947.

This report presents the results of the first large-scale use of accelerated syphilis therapy in the Greater Cincinnati area.

In this study, a triweekly schedule with a dosage of mapharsen of 1 mg. per kilogram of body weight was chosen because it could be conveniently administered to ambulatory patients. The preliminary analysis of the results of the first 4,800 patients with early and early latent syphilis treated under this method, presented in 1944, showed that mapharsen alone gave poor therapeutic results, but that the addition of bismuth produced a cumulative failure rate of about 9 percent only. A modification of Eagle's triweekly method has therefore been used at the Cincinnati General Hospital, at the Health Center Clinic of the Cincinnati Health Department, and in treating private patients during the past 3 years. Forty injections of arsenical and 10 injections of bismuth subsalicylate were used, the arsenical (mostly mapharsen) being
given in a dosage of 1 mg. per kilog
of body weight 3 times per week for
proximately 13½ weeks, and the bism
subsalicylate in a dosage of 1 cc. gi
once a week during the first 10 we
Treatment was limited to patients
primary, secondary, and early lat
syphilis, and syphilis complicated
pregnancy.

This triweekly method has been
erally satisfactory, it is stated, the cl
cal and serologic responses being c
parable with those obtained by ortho
chemotherapy or with other forms
rapid chemotherapy. Untoward reacti
were less frequent than with other me
ods of rapid arsenotherapy and there w
no deaths. The major problem in t
method, however, is the rate of lapse fr
treatment. Of the 714 patients in t
study, about 54 percent have comple
the prescribed course of 40 arsenical
10 bismuth injections. More than 80 p
cent of those completing treatment h
thus far been followed for 6 months
longer, according to the author.

There were no relapses among 24
tients with seronegative (darkfield po
tive) primary syphilis, while serorever
occurred and was maintained in 26 of
patients with seropositive primary syp
ilis. In 112 patients with secondary
fection, 70 have achieved and maintain
seroreversal, and in an additional 21
dividuals, the titer has been lowered a
stabilized at a low level. Of 134 patien
with early latent syphilis, 33 ha
achieved and maintained seroreversal a
41 have shown significant reduction
titer. One hundred and twelve spin
fluid examinations have been performe
most of the fluids being found complete
normal as to Wassermann reaction, pr
tein and cell content, and gold curve
action. To 15 pregnant women who co
pleted therapy, 15 living, apparently n
mal children were born; one full-te
macerated fetus and one 8-month p
mature infant who died shortly aft
birth were delivered to 2 other wom
whose obstetrical records were availab

The author concludes that triweek
arsenotherapy, as used in this study, is

and effective regimen, easily adapted ffice procedure in the treatment of nary, secondary, and early latent hilis.

v. MED., WAUKEGAN

norrhea. 54 : 207, June 1947.

RIDA HEALTH NEWS, JACKSONVILLE

nereal disease. 39 : 19, Jan. 1947.

ÉC. ET OBST., PARIS

ie etiology of spontaneous abortion—excepting syphilis. (Étiologie de l'avortement spontané—en dehors de la syphilis). R. L. Rochat. 45 : 299, 1946. (Abstracted in Surg., Gynec. & Obst., Chicago, 84 : 563–564, June 1947.)

PER HOSP. BULL., DETROIT

apid therapy of syphilis. R. A. Sokolov. 4 : 174–177, Sept. 1946.

. M. A., CHICAGO

alse positive tests for syphilis. A study of their incidence in sporozoite-induced vivax malaria. Charles R. Rein and John F. Kent. 133 : 1001–1003, Apr. 5, 1947.

he management of urticaria due to penicillin. Donald M. Pillsbury, Howard P. Steiger and Thomas E. Gibson. 133 : 1255–1258, Apr. 26, 1947.

treptomycin toxicity. Reactions to highly purified drug on long-continued administration to human subjects. Robert F. Farrington, Harriet Hull-Smith, Paul A. Bunn and Walsh McDermott. 134 : 679–688, June 21, 1947.

enicillin inhalation therapy in respiratory infections. Maurice S. Segal, Leon Levinson and Daniel Miller. 134 : 762–770, June 28, 1947.

alse positive tests for syphilis. A dy of their incidence in sporozoite-uced vivax malaria. Charles R. Rein John F. Kent. J. A. M. A., 133 : 1001–3, 1947.

he authors report on a study in which percent of 90 individuals infected h sporozoite-induced vivax malaria deped false positive reactions with one more serologic tests for syphilis.

he subjects of the experiment were unteers from the United States Penitiary at Atlanta, Ga., who presented evidence of syphilis. Specimens of um were obtained from each person ore his inoculation with malaria by squito bite, at daily intervals during acks, 2 or 3 times weekly after attacks, l at weekly intervals through other periods, the total time of study lasting 18 months. A total of 7,493 serums obtained was subjected to a battery of 7 serodiagnostic tests for syphilis, 44,958 serologic tests being performed.

A false positive reactor, in this study, was defined as any person developing a persistent reaction of degree plus-minus or greater after infection with malaria. Results showed that 57 of the 90 subjects developed false positive reactions with one or more of the serologic tests at some time during the course of the disease, no seropositivity being encountered in advance of the fever or parasitemia of an attack. False positive reactions appeared, on the average, 8.3 days following patency of the parasitemia, but the interval did not vary significantly in primary attacks and in relapses, appearing to be uninfluenced by the serologic test used. In the majority of subjects, the nonspecific reaction was transitory and of low degree. False positive reactions resulting from individual attacks of malaria persisted for intervals varying from 2 days to 98 days, although reactions persisting for longer periods were observed when successive relapses supervened before the seropositivity due to a preceding attack had subsided. A maximum of 517 days was encountered in one such instance.

The incidence of false positive reactions appeared highest in early primary malaria, somewhat lower in delayed primary attacks, and lowest in relapses. Data in this connection are summarized in tabular form. It is noted that the Hinton flocculation test and a microflocculation test employing a cardiolipin antigen yielded results of high specificity in this study, a striking fact in view of their recognized high sensitivity in the serodiagnosis of syphilis.

The management of urticaria due to penicillin. Donald M. Pillsbury, Howard P. Steiger and Thomas E. Gibson. J. A. M. A., 133: 1255–1258, 1947.

The authors discuss urticaria as the most frequently encountered reaction to the parenteral administration of sodium penicillin, summarizing their experience concerning the incidence of urticarial reactions during and after penicillin therapy. Cases are cited demonstrating the unpredictability of this reaction and instances are described in which patients could, and could not, tolerate continuance of penicillin therapy by the simultaneous administration of compounds having an antihistamine effect.

The authors found that (1) penicillin reactions are more frequently encountered in patients who have had repeated courses of the drug; (2) some patients with an urticarial reaction tolerate additional penicillin while others do not; (3) skin tests with penicillin are unreliable as a means of predicting the occurrence of reactions to penicillin in further amounts; (4) antihistamine compounds, particularly benadryl, are useful in controlling urticaria; and (5) urticarial reactions may at times be extremely persistent and severe. Five detailed case histories are given, including three patients under treatment for tabes dorsalis and one with meningovascular syphilis, to illustrate the above points.

In the management of urticarial reactions, penicillin should be stopped at once and benadryl or pyribenzamine administered in a dosage of 50 to 100 mg. three times a day by mouth to adult patients. The intravenous administration of benadryl in a dosage of 5 to 10 mg. given slowly in 20 cc. isotonic sodium chloride solution is advised if the reaction to penicillin is severe or if interruption of therapy is undesirable. With subsidence of the urticaria, a test dose of 1,000 units of a different lot of penicillin should be administered intramuscularly, with the simultaneous administration of an antihistamine drug. If there is no reaction to this test dose, another dose of 10,000 to 20,000 units should be given, and if no reaction occurs within 4 hours, penicillin may be resumed in full therapeutic doses with continued administration of the antihistamine compound in gradually decreasing dosages.

The over-all experience of the authors with benadryl and pyribenzamine in the treatment of urticaria due to penicillin is summarized by table.

Streptomycin toxicity. Reactions t highly purified drug on long-continue administration to human subjects. Robert F. Farrington, Harriet Hull-Smith Paul A. Bunn and Walsh McDermot J. A. M. A., 134: 679–688, 1947.

The authors note that four gener types of toxic reactions have been observed in the treatment of subacute an chronic infections with streptomyci namely: (1) the so-called histamine reaction characterized by flushing, headache, and an abrupt fall in arterial pressure; (2) anaphylaxis; (3) neurolog disturbance characterized by vestibula dysfunction and deafness; and (4) rena irritation evidenced by cylindruria an occasional impairment of renal functio Since it has been impossible to determin whether these evidences of toxicity ar caused by contaminating substances or b the antibacterial agent itself, an investigation was conducted on a group of 1 adults with active pulmonary or acut hematogenous tuberculosis who underwent a 4-month period of continuou therapy with highly purified streptomyci sulfate.

Three grams of streptomycin (approx mately 45 mg. per kilogram of bod weight) were given to each patient dail over a total period of at least 120 days with the exception of two patients wh died on the ninety-third and ninety-nint days, respectively. The material was administered intramuscularly at 3-hour intervals in individual doses of 0.375 gn each. Despite this continuous therapy so little irritation occurred at the site of injection that at the end of 90 day (the originally planned period of study) all the patients elected to continue streptomycin therapy for another month. Intrathecal administration of 0.1 gm. o the drug was well tolerated, but the administration of larger amounts (0.2 t 0.375 gm.), while well tolerated in som instances, at times produced untowar reactions of a potentially serious nature including somnolence approaching stupor headache, and retention of urine. These symptoms usually persisted for from 1 to 24 hours and then disappeared compl ely.

naphylaxis appeared in two patients o the ninth day of therapy, sensitivity to the drug being characterized by a m ulopapular eruption over the entire b y, increase in temperature, nausea, a d vomiting. These symptoms subsided i both patients within a week, however. ylindruria appeared in 14 subjects at so e time during treatment with strep t mycin, although no significant hema t ia or albuminuria developed in 15 of t 16 patients during the 120-day period o treatment. Further, in 14 of the 16 p ients, the values obtained in the de t minations of renal function (urea c arance, concentration and dilution and b weekly blood urea nitrogen) remained w hin normal limits through the period o streptomycin therapy.

Symptoms of vestibular dysfunction ap p ared between the seventeenth and the t enty-fifth days of therapy in all 16 s jects. The reaction was negligible in 6 patients, moderately severe in 8, and s ere in 2 of the patients. The symptoms u ally persisted in an acute form for 7 o 10 days and then subsided almost e irely, sometimes within 24 hours. In n instance, however, was streptomycin t rapy interrupted because of vestibular d sfunction. Deafness developed in 2 o the 16 patients following intrathecal a ministration of the drug, with virtually c mplete loss of hearing in 1 person and a loss of more than 50 percent in the other. Anemia and thrombocytopenia were n t observed in any of the patients after t e institution of therapy, nor was there a y evidence of damage to the liver. sual acuity and the visual fields of all t e patients remained unimpaired duri g the 120-day period of streptomycin t erapy.

The authors conclude that the imme ate toxicity of highly purified strepto ycin sulfate on long-continued admini ration is sufficiently low to justify its e in the treatment of serious and pro acted infections. However, since strep mycin can produce potentially serious actions, its use is considered inadvisable in the treatment of generally benign infections.

Penicillin inhalation therapy in respiratory infections. Maurice S. Segal, Leon Levinson and Daniel Miller. J. A. M. A., 134: 762–770, 1947.

In a discussion of the use of penicillin inhalation therapy in pulmonary infections, the authors present a report on the use of penicillin aerosol in the treatment of 118 patients with bacterial pneumonia, infective bronchial asthma, pulmonary abscess, and other such infections.

It has been demonstrated that penicillin aerosol penetrates the lungs, diffuses into the blood stream, and is excreted into the urine, with the attainment of good topical effects and effective therapeutic levels in the blood. In purely local pulmonary infections without bacteremia, however, the maintenance of a constant high level of penicillin in the blood is not essential, whereas in patients with toxemia or septicemia, additional doses may be necessary. Topical penicillin levels can be maintained by administering concentrated doses six times daily, for instance, while the intramuscular administration of additional amounts five or six times daily may help in producing blood levels sufficiently high to clear the blood stream of bacteria.

In the study reported upon, the sodium or calcium salt of penicillin was used; 25,000 units of penicillin generally being dissolved in 1.0 cc. of isotonic solution of sodium chloride and given at 3-hour intervals for 6 to 8 doses daily. In the earlier use of penicillin aerosol, no systemic, toxic, or allergic manifestations were observed, but more recently edema of the lips or mucosa of the mouth and the development of urticaria have been noted. Changing to another type of penicillin usually cleared up the reaction, but in 1 case of urticaria, the addition of diphenhydramine hydrochloride made possible the continued use of the same lot of penicillin.

The apparatus used in this study was the basic "vaponefrin nebulizer," enlarged to a 2-liter size to permit the utilization of the expired penicillin. Details of the operation of this apparatus, which produces a fine voluminous mist, are given.

Penicillin aerosol therapy is concluded to be of definite value in the management of bronchopulmonary disease; for patients manifesting obstructive disease of the respiratory tract, streams of helium and oxygen can be used in the place of oxygen. Penicillin aerosol may be directed into tents, masks, and tracheotomy openings, and if indicated, other chemotherapeutic or antibiotic drugs may be substituted for the penicillin.

J. ARKANSAS M. SOC., LITTLE ROCK

Committee on control of syphilis. Proceedings of the seventy-first annual session Arkansas Medical Society, Apr. 17, 18, and 19, 1947. L. G. Martin. 44 : 16–40, June 1947.

Venereal disease control. Proceedings of the seventy-first annual session Arkansas Medical Society, Apr. 17, 18, and 19, 1947. 44 : 16–40, June 1947.

J. ROY. ARMY M. CORPS, LONDON

The treatment of early syphilis in the Army. Original communications. R. R. Willcox. 87 : 51–57, Aug. 1946.

A penicillin injector. J. P. Baird and D. P. Jones. 87 : 91–92, Aug. 1946.

J. ROY. INST. PUB. HEALTH & HYG., LONDON

Blindness in childhood—past achievements and present problems. Arnold Sorsby and Charles B. Goulden. 10 : 162–172, May 1947.

J. SOCIAL HYG., NEW YORK

An experiment in cooperative community organization. Part I. From the official viewpoint. John R. Heller, Jr. Part II. From the viewpoint of the voluntary agency. Esther Emerson Sweeney. 32 : 292–309, Oct. 1946.

Rhode Island serves her youth. A report on the first year's work of the Rhode Island Social Hygiene Association. Josephine D. Sever. 32 : 310–320, Oct. 1946.

Twenty-two years' progress in social hygiene legislation in the States. 32 : 356–360, Nov. 1946.

Social hygiene laws in court. Important court decisions and rulings on operation of venereal disease laws. William George Gould. 32 : 361–370, Nov. 1946.

Seven years' experience with premarital and prenatal examinations for syphilis in New Jersey. Glenn S. Usher and John Hall. 32 : 371–379, Nov. 1946.

New French law for repression of prostit
tion goes into effect. 32 : 383–385, No
1946.

Out of the shadow? 32 : 413–418, Dec. 194

Prevention is the watchword! Some soci
implications of the venereal diseases an
their control. Ross T. McIntire. 3
420–424, Dec. 1946.

Health of the army. Norman T. Kirk. 3
425–429, Dec. 1946.

Working together to stamp out v. d. Walt
Clarke. 32 : 430–435, Dec. 1946.

The moral equivalent for law enforcemen
Charles C. Noble. 32 : 436–439, Dec. 194

Postwar progress against prostitution. Al
Johnstone. 33 : 49–52, Feb. 1947.

Is commercialized prostitution returnin
33 : 53–56, Feb. 1947.

Are we holding our own against prostit
tion? A postwar review of progress
the United States. Bascom Johnson. 3
57–64, Feb. 1947.

Milestones in the march against prostit
tion. 33 : 65–72, Feb. 1947.

Why women are interested in social hygien
Edith Adams Ritchie. 33 : 102–108, M
1947.

What radio can do for social hygiene.
Reagan "Tex" McCrary. 33 : 109–11
Mar. 1947.

What the American Social Hygiene Associ
tion is and does. Walter Clarke. 3
141–143, Mar. 1947.

J. TENNESSEE M. A., NASHVILLE

Present-day management of early syphil
Dudley C. Smith. 40 : 169–175, Ju
1947.

LANCET, LONDON

Penicillin for gonorrhoea in the fema
W. Neville Mascall. 2 : 712–714, Nov. 1
1946.

Gonorrhoea in the female. Letters to t
editor. Mary Michael-Shaw. 2 : 8
Dec. 7, 1946.

Resistant gonococci. Letters to the edit
W. S. Parker. 2 : 850, Dec. 7, 1946.

MARYLAND HEALTH BULL., BALTIMORE

Rapid treatment for syphilis. 19 : 15–1
19, Apr. 1947.

MIL. SURGEON, WASHINGTON

*Venereal disease control in the Unit
States Occupied Zone of Germany. M
rison C. Stayer and William A. Brumfie
Jr. 100 : 375–381, May 1947.

**Venereal disease control in the Unit
States Occupied Zone of Germany.** M
rison C. Stayer and William A. Brumfie
Jr. Mil. Surgeon, 100 : 375–381, 1947.

Observations of some of the aspects encountered in venereal disease control in the United States Occupied Zone of Germany are presented in this article.

The German law directed toward the prevention of venereal diseases was enacted in 1927 under the Weimar Republic, and was still in effect at the time of surrender in May 1945. The Weimar law proved of value to the Military Government in promoting venereal disease control. Its major provisions did not differ materially from those contained in the venereal disease control laws in the United States. Among the provisions were: (1) compulsory treatment of the infected person; (2) isolation in the communicable stage; (3) marriage and sexual intercourse forbidden when the person knew he was infected; (4) certain occupations, as nursemaid, forbidden; and (5) advertising of venereal disease cures or treatment other than that of official health agencies prohibited. It will be noted that the reporting of venereal disease cases by physicians, hospitals, or clinics, was not required under the German law.

The first military directive issued to civil authorities was August 2, 1945. It ordered the health officers to promote an educational program to inform the people of the marked increase in venereal diseases and to encourage early diagnosis and treatment. Civil health authorities were directed to obtain reports of all cases of venereal disease for transmittal to appropriate Military Government health officers at weekly intervals. These weekly reports reflected the effectiveness of the case-finding and treatment program.

In August 1945 there were 57 venereal disease isolation hospitals with a total bed capacity of over 5,000.

Syphilis was treated by the usual European method of intermittent courses of arsenical, followed by bismuth or mercury and a rest period. Hospital patients remained in isolation until surface lesions were healed, usually 3 weeks, and were then discharged to the out-patient department for continued routine treatment.

The treatment of gonorrhea patients with sulfonamides plus local irrigations, instillations, vaccines, or other treatment to which the physician in charge felt inclined was found to be unsatisfactory. War Department approval for the use of penicillin for the treatment of gonorrhea among civilians was obtained, and on October 28, 1945, this drug was available to the detention hospitals. Treatment consisted of 200,000 units of sodium penicillin given in 4 injections of 50,000 units each at 3-hour intervals; within a short period the cure rate of a single day's treatment was 90 percent.

Prior to hostilities venereal disease prevalence in Germany, as indicated by annual questionnaires to physicians, hospitals, and clinics, was approximately 130 per 100,000 population. Military Government reports indicate that the prevalence of gonorrhea is about 7 times that of syphilis at the present time.

The principles of venereal disease control which have been applied for several years in the United States are now being subjected to the acid test in Germany. The authors express confidence in the success of the program.

MINNESOTA MED., ST. PAUL

Penicillin in the treatment of syphilis. S. E. Sweitzer. 30: 535–538, May 1947.

MISSISSIPPI DOCTOR, BOONEVILLE

Venereal disease control in Mississippi, 1945–1947. A. L. Gray. 25: 56–58, June 1947.

NEW ENGLAND J. MED., BOSTON

*Oral administration of penicillin. Its use in 150 cases. Sidney Ross, Frederic G. Burke and Sidney Olansky. 236: 817–820, May 29, 1947.

Oral administration of penicillin. Its use in 150 cases. Sidney Ross, Frederic G. Burke and Sidney Olansky. New England J. Med., 236: 817–820, 1947.

The authors report on the oral administration of penicillin in 150 cases, including gonorrhea, subacute bacterial endocarditis, pneumonia, syphilis, cellulitis, impetigo, and streptococcal pharyngotonsillitis.

A total of 96 patients (63 adults and 33 children) with gonorrhea was treated with oral penicillin. The dosage schedule for the adult group was 50,000 units of penicillin administered every 3 hours for 6 doses, or a total of 300,000 units. Of the 63 patients treated, 57 were cured and 5 were failures; 1 patient was apparently reïnfected within a month following negative cultures.

The dosage schedule for the 33 children ranged between 200,000 and 500,000 units, the majority receiving either 300,000 or 400,000 units. There were 5 failures in this group. The authors observe that the results are comparable to those obtained when approximately 100,000 to 150,000 units of penicillin are injected intramuscularly.

Penicillin was administered orally in 3 adult cases of early syphilis. The dosage schedule consisted of 50,000 units of calcium penicillin in tablet form every 4 hours for 12 days, or a total of 3,600,000 units. Serologic reversals were obtained in all cases. In one case, however, a relapse occurred within 5½ months, and the follow-up examination in the other 2 cases was too short to permit any statement regarding the permanency of the negative serologic test obtained. The authors state that it is possible that a total dose of 5,000,000 to 10,000,000 units is required in early syphilis if penicillin is administered orally.

The authors state that in view of the relatively small number of cases, as well as the age range, in this series, no categoric statement is possible regarding the optimal oral dose of penicillin. The dosage varies from case to case, depending on the severity and type of infection.

In conclusion, the authors stress the inadvisability of indiscriminate oral administration of penicillin.

New Orleans M. & S. J., New Orleans

The status of abortus infections in the United States. (Similarity of brucellosis and syphilis.) Harry J. Schmidt. 99: 552–554, May 1947.

The part of the general practitioner in the management of vesical neck obstruction. (Including v. d.) Frederic E. B. Foley. 99: 619–627, June 1947.

Post-Grad. M. J., London

Penicillin in general practice. G. L. Ro
son. 23: 86–92, Feb. 1947.

The diagnosis of enlargement of the lym
atic glands. Frederic Sutton. 23: 2
229, May 1947.

Pub. Health News, Trenton

Seven years of premarital and pren
examinations. 28: 210, Feb. 1947.

Pub. Health Nursing, New York

Nursing for the Atomic City. (Inclu
v. d.) Laura S. Breese and Isabel We
39: 13–17, Jan. 1947.

What is a consultant? With special re
ence to the venereal disease field. Joh
Stokes. 39: 239–245, May 1947.

Treatment progress in venereal disease
trol. Norman R. Ingraham, Jr.
250–252, May 1947.

The nurse in a changing venereal dis
program. M. Elizabeth Pickens.
253–255, May 1947.

Quart. Bull. Dept. Health, City of N
York, N. Y.

Record of city's health in 1946. (Inclu
v. d.) 15: 6–8, Apr. 1947.

Venereal diseases. 15: 12, Apr. 1947.

Rev. clín. españ., Madrid

Pulmonary tuberculosis and syphilis.
Cerviá and V. Gutiĕrrez. 24: 81,
31, 1947. (Abstracted in J. A. M.
Chicago, 134: 647, June 14, 1947.)

Rev. Gastroenterol., New York

Surgical treatment of lesions of the lo
bowel. (Including lymphogranul
venereum.) Harry E. Bacon, S. Art
Linde and Frank H. Murray. 14: 3
315, May 1947.

Modern gastroscopy: observations. (D
nosis of syphilis.) Henry A. Monat.
320–331, May 1947.

Sc. News Lett., Washington

Disease causes found. (Donovan bo
50: 35, July 20, 1946.

Distribution process separates penicill
50: 265, Oct. 26, 1946.

Science, Baltimore

Effect of streptomycin on the metabolis
certain mycobacteria. Frederick B
heim and R. J. Fitzgerald. 105:
Apr. 25, 1947.

Statist. Bull. Metrop. Life Ins.
New York

Large decline in mortality from syph
27: 8–10, Dec. 1946.

CURRENT NOTES AND REPORTS

Minutes of the Serology Committee Meeting

e Committee on the Evaluation of iagnostic Tests for Syphilis[1] of the d States Public Health Service met ashington, D. C., on May 22, 1947. ollowing members were present: Dr. F. Mahoney, chairman, Dr. Henry azen, Dr. Walter M. Simpson, Dr. cis E. Senear, and Dr. J. R. Heller,

e following report was presented by . F. Mahoney of the Venereal Dis- Research Laboratory, Staten Island, .:

ence of Penicillin Therapy Upon philis Serology

the course of the last 4 years the ment of syphilis has passed, tenta- y at least, from a basis of arsenic and uth to penicillin. As experience with ew therapy broadens and as the post- ment observation of patients length- the conviction becomes more fixed antibiotic therapy will completely ce the older treatment. The relation- of serology to the management of atient has changed in several major cts.

penicillin therapy the serologic curve portant. To be of greatest usefulness urve should extend from the time of ment. A serologic finding occurring y time during posttreatment observa- is of importance only as it becomes of the serologic pattern or record and when interpreted in comparison with emainder of the curve.

early syphilis the anticipated sero- curve of a patient responding to apy in a satisfactory manner consists gradual and progressive decline in iter of the quantitative reactions, fol- d by reversal to negative of all quali- e tests. This may occur within a period of several weeks or it may require a year or more for completion.

Serologic indications of therapeutic failure consist of a return to a high titer level following an initial decline immediately after treatment, or of little or no change in the original titer. The first phenomenon can be discerned only when the character of the curve of which it is a point is known to the physician receiving the report. A transient return to a higher level may be the result of technical error, variations in level of sensitivity of the test employed, or the presence of an intercurrent infection. Thus, to be of value, the return to high titer must be sustained. This pattern is considered a serorelapse and may not be accompanied by clinical symptoms.

The second type of failure, serologic failure, is exemplified by the patient whose serum yields a consistently high titer reaction displaying very little evidence, if any, of a decline following treatment. This pattern is the rule in late and latent syphilis but is rarely seen in the early stage of the disease.

On the basis of the usual patterns observed in known syphilis, a minimum of importance is placed upon the borderline, or threshold, zones. Neither in early syphilis in which the serologic upstroke is beginning, nor in treated syphilis in which the downstroke of the curve is approaching the negative level, is the detection of minimal amounts of reacting substance of importance. Hence, tests of extreme sensitivity are of doubtful value not only because of the dubious character of the information contributed but also because of the danger of nonspecific positive reactions occurring in the borderline zones. From the standpoint of the patient who has been treated for syphilis, the quantitative serologic determination is important. The isolated positive finding of unknown titer and of unrelated position in

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he new and officially approved name of committee is the National Advisory ogy Council.

the serologic curve becomes of minimal importance. These problems will be presented in a more detailed discussion.

False Positive Serologic Reactions

Many clinicians who have been treating syphilis over a period of years find that they are encountering an increasing number of patients in whom there is good reason to doubt the validity of the positive serologic finding. These instances are not attributable to the diseases which are usually accepted as being capable of producing a false positive reaction but, presumably, to conditions of much more frequent occurrence than malaria, leprosy, mononucleosis, etc. Prevalence figures for syphilis in the Negro, based upon serologic findings, are being questioned, especially in view of the limited number of primary lesions which are observed and the infrequent identification of congenital manifestations of the disease. Quite recently a high incidence of positive serologic reactions was observed among the Indians of Guatemala and the peons of Mexico. The relative infrequency with which clinical syphilis is encountered among these peoples sponsors the belief that some other factor, perhaps racial or environmental, may be responsible for the high percentage of positive findings. This ambiguous problem is being studied intensively in Guatemala. If reasonable leads are found, investigations will be extended to the laboring classes of Mexico, to the American Indian of the southwestern part of the United States, and to the Negro.

An effort to distinguish true from false positive reactions has been guided by Neurath in a biochemical and serologic study which has extended over a 3-year period. A method has been developed which, according to unpublished reports, is capable of demonstrating a consistent difference between the reacting substance of syphilis and that arising from any other cause. However, the proper interpretation to be placed upon the findings and the value of the information in terms of clinical syphilis cannot be stated at present.

Study of Optimal Reactivity Level Serodiagnostic Tests

Previous mention has been made of influence of penicillin therapy upon s ilis serology and of the danger of worl in the borderline zones. It appears the present is a logical time for the velopment of a study to fix the leve reactivity of serodiagnostic tests a point most informative in terms of c cal syphilis and as free as possible f the likelihood of encountering nonspe positive reactions.

The entire program would includ combined clinical and laboratory st participated in by the leading clinic of the country and by several laborato having ample serologic facilities. primary purpose of the initial st would be to determine the level of activity which would be the safest most informative. The second pur would be to establish a reference st ard, probably based on cardiolipin a gens, which would be available checking the reactivity level of any procedure employing either lipoidal cardiolipin antigen.

Until something of this character is tempted there seems to be very little l lihood of simplifying the present struct of serology which is contributing consi able confusion to the diagnosis of syph instead of serving as an aid in locat the disease.

From a technical standpoint it appe to be possible to produce a refere standard and to make it freely availa to any laboratory in need of checking procedures as to sensitivity insofar blood serum is concerned. To extend same type of service to spinal fluid t ing does not appear feasible, as ther no method available through which reasonable estimate can be formed as the minimal amount of reacting substa which may be significant of actual volvement of the central nervous syst

Review of Surveys of 1946 and 1947

During the past 2 years there have b no major changes in the organization the national evaluation of serodiagno s for syphilis. Control performances e remained in the laboratories of the s' authors, except for two tests in the 7 evaluation study, wherein, at the uest of Dr. Harry Eagle, the findings he Venereal Disease Research Labora- y were used for the Eagle flocculation complement-fixation tests.

n an effort to establish a means of luating quantitative procedures, the ticipants in the 1947 survey were in- d to submit unofficially the results of ir performances of quantitative tests. rial analysis of the results is now be- made, and it is hoped that the pres- ation will stimulate suggestions for ding a program for improving quanti- ve performances, just as previous sur- s have operated in increasing the effi- cy of performance of diagnostic or litative performances.

he extension of intrastate serologic luation programs is evidenced by the reasing number of these studies in ich the Venereal Disease Research Lab- tory has been asked to serve as a co- trol. From November 1945 to date, Venereal Disease Research Laboratory acted as a control laboratory for 33 ologic surveys conducted by 17 State oratories, for 3 by municipal labora- ies, and for 7 by Army laboratories.

even other serologic evaluation studies re planned and conducted by the Ve- eal Disease Research Laboratory. The t 2 utilized merthiolated spinal fluid cimens prepared from pooled positive l pooled negative fluids. The other veys included: 2 studies involving the tribution of 800 pooled serum samples 4 laboratories as test performance luation preliminary to an investiga- n of the Neurath-Inhibition test; the tribution of 2,400 individual serum nples to 12 "Blue Star" treatment cen- s for the evaluation of quantitative hn test performances; and a survey w being conducted with individual se- ms for the evaluation of 10 testing pro- lures performed by 2 United States blic Health Service hospital labora- ies, a municipal laboratory, and the Venereal Disease Research branch laboratory in Guatemala, C. A.

Cardiolipin and Purified Lecithin as Antigen

Cardiolipin originally was prepared by Pangborn in the laboratory of the New York State Department of Health in 1941. The substance is classed as a phospholipin. Its exact structural formula has not been published nor is its degree of purity known. Experience indicates that it may be produced consistently from fresh beef heart by prescribed chemical extraction and purification.

By the expedient of combining cardiolipin, purified lecithin, and cholesterol in optimal proportions, an antigen capable of replacing the lipoidal type of antigen, at present employed in accepted tests for syphilis, may be prepared. The level of reactivity of the antigen mixture and hence the sensitivity of the method in which the mixture is employed may be altered, within limits, by variations in the ratio of the several components.

As experience was gained in the use of the substance, it became evident that the term "lecithin" represented a class of compounds rather than a chemical entity; that all cardiolipin preparations did not have the same reactivity and that chemical assay was not an adequate index to the serologic activity; that each antigen-lecithin mixture required serologic assay before being employed in a test procedure; and that each method (Kline, Kahn, etc.) required an antigen formula of differing ratios.

It is now realized that the cardiolipin antigens are based on a highly refined product only relatively free from the vagaries which characterized earlier lipoidal antigens, since it appears evident that the number of conditions capable of giving rise to nonspecific reactions are less with cardiolipin than with lipoidal products. That false positive reactions occur with cardiolipin antigen can no longer be doubted.

At the time of the original publication of the cardiolipin-lecithin antigen combination, it appeared possible to clarify the entire picture of syphilis serology by the adoption of a simple plan of developing three tests, each based upon a definite antigen-lecithin ratio: one complement fixation, one tube flocculation, and one slide flocculation. This plan could have replaced the serologic structure now in operation. This device would have served to create standard methods as well as standard ingredients which would have been made available to any laboratory doing syphilis serology.

Because of greater uniformity of product and greater specificity of test results obtained with the cardiolipin antigens, there appears ample reason to believe that the older antigens will be completely replaced by the newer. The Pangborn contribution marks the onset of a new era in syphilis serology. Steps must be taken in this period of transition to establish standards for the production of antigens.

Venereal Disease Research Laboratory and Production of Standard Antigens

The production of cardiolipin and the standards of chemical purity which will be required of the material offered for sale will be governed by agreement with the patent holder. The preparation of antigens from cardiolipin still constitutes a major technical problem which will fall, to a large extent, upon the individual laboratory units actually engaged in testing specimens. From experience in the Venereal Disease Research Laboratory in compounding antigens of this type, it may be safely predicted that a high degree of confusion will result unless some form of guidance is made available at an early date.

To insure a standard level of reactivity for each commercial lot of antigen would require that the several ingredients, i. e., cardiolipin, lecithin, and cholesterol, be made available in bulk to the standardization laboratory, that the formula be developed, and that the complete antigen be assembled and checked. The product then could be returned to the manufacturer for packaging and distribution. This becomes necessary because each lot
cardiolipin and each lot of lecithin
quires a serologic assay before the pro
ratio for the assembling of a suita
antigen can be determined. Further, t
serologic assay must be done by a co
petent serologist who has access to clini
material under the guidance of compet
syphilologists. Very few, if any, co
mercial concerns are equipped for t
type of work. For these reasons t
manufacturers probably will endeavor
supply cardiolipin which will be of
ceptable standards of purity. This w
leave the very important functions of
sembling the antigen to the discretion
the individual laboratory worker.

To exercise intelligently the super
sion necessary to insure a uniform pr
uct it would be necessary to follow t
routine outlined above. Only in this w
could the danger of marketing unsta
ardized preparations be reasonab
avoided. A very considerable amount
work would be required for each sta
ardization, but the procedure offers t
only effective means of insuring relia
products on a commercial basis.

The extent to which the Venereal D
ease Research Laboratory could go i
this particular activity would depe
somewhat upon the legal aspects. A
efforts would have to be on a cooperati
basis between the commercial concern a
the Venereal Disease Research Labo
tory, as no restrictive or regulatory po
ers are possessed by the United Stat
Public Health Service. A standardizi
service made available to one commerci
concern would obligate the extending
a similar service to all. The volume
work developing from this activity mig
become great, but at present the p
cedure offers the only practical approa
to placing standard cardiolipin antigen
the market. Of course, careful conside
tion of a host of details would be requir
before a complete plan could be evolve
The role of the present Committee wou
before a complete plan could be evolve
ability of undertaking this importa
activity.

Committee Actions

here was considerable discussion of diolipin antigen, particularly as to the ent rights. Much interest was ex- ssed in the desire of one of the larger mercial companies to place cardio- n-lecithin antigen on the market l its request to the Venereal Dis- e Research Laboratory for techni- assistance. It was the sense of group that the development of diolipin antigen is one of the great- advances made in serology in the t few years and that much can be pected in standardizing and improv- the serology of syphilis. It was also nted out that this product is not the al answer and that other antigens or ts may be evolved in the field of ology. The Committee unanimously proved the motion that the chief of the nereal Disease Division and the direc- of the Venereal Disease Research Lab- atory consult representatives of the od and Drug Administration and the ologics Control Laboratory of the Na- nal Institute of Health in the interest one of these agencies assuming the ndardization of antigen used in philis serology. If possible, the Vene- al Disease Research Laboratory should designated to carry out this function, ice it is equipped for this purpose by tue of having available necessary nical facilities.

After discussion of the report of the 47 survey of serodiagnostic tests for philis in participating State health de- rtment laboratories, it was moved, conded, and passed that this report be blished. It was the sense of the group at these annual evaluation studies ould be maintained. The Committee so felt that the intrastate serologic aluation studies should be continued by ate laboratories. The recommendations r such studies were contained in the roceedings of the Assembly of Laboratory Directors and Serologists held under the auspices of the Committee on Evalua- and the United States Public Health tion of Serodiagnostic Tests for Syphilis Service at Hot Springs National Park, Ark., October 21–22, 1938.[1]

The diagnosis of central nervous system syphilis by laboratory methods was discussed at length. It was the consensus of the group that little can be done at this time toward standardizing the laboratory procedures but that every effort should be made to pursue all avenues of study which appear promising in this field.

A standard method for reporting the results of quantitative serology was discussed. Dr. Mahoney reported that a paper has been prepared in his laboratory which suggests standardization of such reporting.[2]

There was considerable discussion concerning addition to the Committee of one or more members of the State laboratory directors group. It was felt that the scope of the Committee had expanded far beyond the original concept, and representation from this group was indicated. The Committee unanimously voted to accept two members designated by the Association of State Laboratory Directors. The president of the Association will be requested to formalize this action and the Committee members will be advised accordingly.

In discussing the wider scope of activities it was believed desirable that the name of the Committee be changed. On motion regularly made and seconded it was voted to change the name from the Committee on the Evaluation of Serodiagnostic Tests for Syphilis to the National Advisory Serology Council.

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[1] The Serodiagnosis of Syphilis. Supp. No. 9 to VEN. DIS. INFORM., 1939.

[2] The reader may be interested in the July issue of the JOURNAL OF VENEREAL DISEASE INFORMATION, 28: 129–140, which presented articles on serologic procedures and other aspects of research at the Venereal Disease Research Laboratory.

Syphilis and Gonorrhea Cases Reported for the First Time in States and Territories, Second and Third Quarters Fiscal 1947

[Known military cases are excluded]

Area	Syphilis															Gonorrhea		
	Primary and secondary			Early latent			Late and late latent			Congenital			Not stated					
	October-December 1946	January-March 1947	Trend ratio	October-December 1946	January-March 1947	Trend ratio	October-December 1946	January-March 1947	Trend ratio	October-December 1946	January-March 1947	Trend ratio	October-December 1946	January-March 1947	Trend ratio	October-December 1946	January-March 1947	Trend ratio
District 1—Total	4,121	4,276	1.04	4,497	4,718	1.05	7,299	7,951	1.09	476	607	1.28	525	431	0.82	11,791	10,477	0.89
Connecticut	130	107	.82	175	69	.39	323	210	.65	20	15	.75	59	63	1.07	363	283	.78
Delaware	92	96	1.04	74	84	1.14	36	38	1.06	7	8	(a)	20	23	1.15	81	93	1.15
Maine	118	144	1.22	30	28	.93	94	56	.60	5	8	(a)	1	8	(a)	191	177	.93
Massachusetts	293	306	1.04	177	119	.67	409	448	1.10	41	59	1.44	0	0	--------	1,033	937	.91
New Hampshire	22	26	1.18	16	20	(a)	45	43	.96	2	11	(a)	3	7	(a)	103	69	.67
New Jersey	523	508	.97	786	801	1.02	1,019	931	.91	50	67	1.34	18	16	(a)	1,649	1,462	.89
New York	1,935	1,793	.93	1,893	1,868	.99	4,125	4,692	1.14	211	220	1.04	176	98	.56	[b] 6,128	[b] 5,131	.84
New York City	1,465	1,392	.95	1,625	1,663	1.02	2,863	3,590	1.25	142	157	1.11	68	35	.51	5,951	4,934	.83
Pennsylvania	902	1,185	1.31	1,297	1,692	1.30	1,125	1,380	1.23	127	193	1.52	202	178	.88	[c] 1,893	[c] 2,072	1.09
Philadelphia [d]	494	555	1.12	906	1,039	1.15	687	742	1.08	49	90	1.84	145	93	.64	1,796	1,556	.87
Pittsburgh [d]	344	188	.55	189	156	.83	157	205	1.31	31	22	.71	0	0	--------	439	172	.39
Rhode Island	70	67	.96	38	32	.84	116	145	1.25	5	23	(a)	46	33	.72	199	142	.71
Vermont	36	44	1.22	11	5	(a)	7	8	(a)	8	3	(a)	0	5	(a)	151	111	.74
District 2—Total	5,115	4,474	.87	4,051	3,952	.98	2,935	2,652	.90	410	367	.90	420	462	1.10	16,396	14,964	.91
District of Columbia	467	299	.64	392	339	.86	231	243	1.05	13	27	(a)	4	42	(a)	3,399	3,181	.94
Maryland	551	666	1.21	363	440	1.21	431	629	1.46	40	54	1.35	397	390	.98	1,348	1,625	1.21
Baltimore	457	555	1.21	309	371	1.20	375	554	1.48	21	40	1.90	75	87	1.16	929	1,162	1.25
North Carolina	1,042	1,128	1.08	719	831	1.16	317	263	.83	101	87	.86	0	0	--------	3,251	3,314	1.02
South Carolina	793	719	.91	851	1,003	1.18	526	454	.86	65	69	1.06	0	0	--------	3,096	2,645	.85
Virginia	935	737	.79	979	781	.80	711	541	.76	77	60	.78	19	30	(a)	3,506	2,689	.77
West Virginia	1,327	925	.70	747	558	.75	719	522	.73	114	70	.61	0	0	--------	1,796	1,510	.84
District 3—Total	5,353	4,873	.91	4,585	4,442	.97	6,498	6,272	.97	521	544	1.04	801	854	1.07	18,745	15,807	.84
Illinois	1,539	1,452	.94	1,611	1,556	.97	2,250	1,775	.79	170	126	.74	0	0	--------	8,961	8,114	.91
Chicago	968	912	.94	1,071	1,231	1.15	1,325	1,187	.90	96	77	.80	0	0	--------	7,212	6,657	.92
Indiana	562	563	1.00	316	305	.97	628	620	.99	60	65	1.08	250	211	.84	489	446	.91
Kentucky	724	693	.96	463	377	.81	237	522	2.20	29	47	1.62	47	148	3.15	3,769	1,973	.52
Michigan	1,144	891	.78	1,056	896	.85	1,763	1,695	.96	123	136	1.11	479	492	1.03	2,846	2,796	.98
Ohio	1,186	1,117	.94	1,048	1,128	1.08	1,388	1,405	1.01	130	137	1.05	0	0	--------	2,334	2,172	.93
Wisconsin	198	157	.79	91	180	1.98	232	255	1.10	9	33	(a)	25	3	.12	346	306	.88
District 4—Total	7,465	7,222	.97	7,928	8,258	1.04	6,438	6,628	1.03	942	843	.89	2,411	2,250	.93	33,475	29,017	.87
Alabama	928	879	.95	1,232	1,383	1.12	1,127	1,759	1.56	168	124	.74	819	1,090	1.33	2,205	2,162	.98
Arkansas	732	709	.97	824	1,143	1.39	512	764	1.49	91	113	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Tennessee	956	1,073	1.12	1,050	1,134	1.08	682	777	1.14	67	87	1.30	6	5	(a)	6,579	6,477	.98
District 5—Total	1,986	2,133	1.07	1,805	2,209	1.22	3,096	3,276	1.06	250	244	.98	254	299	1.18	10,632	10,655	1.00
Alaska	11	15	(a)	10	12	(a)	2	4	(a)	0	0	--------	1	1	(a)	206	181	.88
Arizona	150	192	1.28	89	109	1.22	87	98	1.13	13	10	(a)	0	0	--------	343	419	1.22
California	1,417	1,602	1.13	1,502	1,853	1.23	2,337	2,726	1.17	162	200	1.23	150	177	1.18	8,299	8,424	1.02
Hawaii	31	17	.55	40	28	.70	297	83	.28	37	7	.19	16	3	(a)	142	159	1.12
Nevada	48	48	1.00	3	0	(a)	58	41	.71	5	2	(a)	15	44	(a)	138	121	.88
Oregon	174	129	.74	55	82	1.49	128	159	1.24	15	13	(a)	48	35	.73	474	453	.96
Washington	155	130	.84	106	125	1.18	187	165	.88	18	12	(a)	24	39	1.62	1,030	898	.87
District 6—Total	191	238	1.25	626	987	1.58	240	468	1.95	383	513	1.34	0	0	--------	1,382	1,550	1.12
Puerto Rico	188	233	1.24	602	971	1.61	238	463	1.95	383	513	1.34	0	0	--------	1,319	1,505	1.14
Virgin Islands	3	5	(a)	24	16	.67	2	5	(a)	0	0	--------	0	0	--------	63	45	.70
District 7—Total	1,499	1,505	1.00	1,450	1,225	.84	1,641	1,438	.88	197	150	.76	256	151	.59	3,904	3,575	.92
Iowa	147	174	1.18	119	92	.77	56	76	1.36	16	13	(a)	30	24	.80	349	397	1.14
Kansas	182	197	1.08	175	157	.90	283	257	.91	48	24	.50	13	13	(a)	680	668	.98
Minnesota	184	127	.69	69	51	.74	172	151	.88	16	12	(a)	17	9	(a)	530	383	.72
Missouri	821	793	.97	943	754	.80	928	764	.82	92	85	.92	97	36	.37	1,846	1,668	.90
St. Louis[d]	616	582	.94	773	577	.75	727	565	.78	69	67	.97	0	0	--------	1,218	1,076	.88
Nebraska	102	114	1.12	111	97	.87	147	137	.93	19	11	(a)	87	59	.68	285	254	.89
North Dakota	28	49	1.75	10	19	(a)	19	22	(a)	1	0	(a)	11	6	(a)	82	81	.99
South Dakota	35	51	1.46	23	55	2.39	36	31	.86	5	5	(a)	1	4	(a)	132	124	.94
District 8—Total	308	346	1.12	226	247	1.09	317	281	.89	31	44	1.42	63	52	.83	893	879	.98
Colorado	161	164	1.02	114	125	1.10	168	152	.90	19	17	(a)	0	0	--------	486	526	1.08
Idaho	63	58	.92	48	45	.94	53	54	1.02	3	14	(a)	12	6	(a)	172	157	.91
Montana	24	38	1.58	26	29	1.12	12	19	(a)	3	5	(a)	45	41	.91	76	82	1.08
Utah	23	35	1.52	23	23	1.00	56	33	.59	4	5	(a)	0	0	--------	104	81	.78
Wyoming	37	51	1.38	15	25	(a)	28	23	.82	2	3	(a)	6	5	(a)	55	33	.60
District 9—Total	1,368	1,474	1.08	1,783	1,978	1.11	1,279	1,564	1.22	243	275	1.13	1,538	1,496	.97	8,382	8,897	1.06
New Mexico	188	112	.60	96	92	.96	109	98	.90	22	17	.77	0	1	(a)	343	359	1.05
Oklahoma	391	499	1.28	383	593	1.55	635	940	1.48	79	118	1.49	174	213	1.22	2,070	2,279	1.10
Texas	789	863	1.09	1,304	1,293	.99	535	526	.98	142	140	.99	1,364	1,282	.94	5,969	6,259	1.05
Canal Zone	16	18	(a)	16	14	(a)	31	25	.81	0	2	(a)	1	3	(a)	223	252	1.13
Total continental United States	27,173	26,271	.97	26,275	26,989	1.03	29,204	29,975	1.03	3,033	3,067	1.01	6,251	5,991	.96	103,870	93,931	.90
Total United States and Territories	27,422	26,559	.97	26,967	28,030	1.04	29,774	30,555	1.03	3,453	3,589	1.04	6,269	5,998	.96	105,823	96,073	.91

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[a] Ratio not calculated when base is less than 20.

[b] Total New York City and previously untreated cases diagnosed by clinics and rapid treatment centers in up-State New York.

[c] Total Philadelphia and Pittsburgh (from VM-820) and previously untreated cases diagnosed by clinics and rapid treatment centers for remainder of Pennsylvania.

[d] Data from VM-820 instead of 8958-B.

Source: Form 8958-B USPHS—Venereal Disease Division, Office of Statistics 7/10/47 (ML-MC) mjm.

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FEDERAL SECURITY AGENCY
United States Public Health Service

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FEDERAL SECURITY AGENCY

UNITED STATES PUBLIC HEALTH SERVICE

THOMAS PARRAN, *Surgeon General*

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“Penicillin-Resistant Gonorrhea” vs. “Nonspecific Urethritis”[1]

George E. Parkhurst, Surgeon; Fred W. Harb, Senior Assistant Surgeon; and George R. Cannefax, Assistant Bacteriologist

umors and statements in the litera- e have increasingly reiterated the idea t certain strains of N. gonorrhoeae e become penicillin resistant in vivo, n when so-called intensive dosage edules are used. Urgent letters, tele- ms, and telephone calls, mostly from tors of the mid-central States, have n received at the Hot Springs Medical ter, asking if we will accept for fever rapy patients who have “penicillin-re- ant gonorrhea.” We have gladly ac- ted all such patients for study. Also, a further effort to uncover true resist- e, the Arkansas State Board of Health s asked to refer all patients from local lth units who were diagnosed “peni- in-resistant gonorrhea.” The follow- memorandum was sent by the State ard of Health to each local health unit ere penicillin was being used for the atment of gonorrhea:

In the future, all cases that are con- ered resistant to sulfonamide, penicil- , or streptomycin therapy will be ad- tted to the Medical Center [at Hot rings] for further treatment.”

ollowing the circulation of this mem- ndum, the Medical Center's admission e for male urethritis increased. Most of these patients were found to have “nonspecific” infections. Those found to have gonorrhea were bacteriologically cured with penicillin therapy. Reinfections must, of course, be considered in this latter group, and were proved in a number of patients.

We do not obtain 100-percent bacteriologic cure with our routine penicillin therapy, i. e., 1 injection of 300,000 units contained in 1 ml. of peanut oil with 4.8 percent beeswax. A small percentage of our patients require 2 such injections, a day apart; and cases with complications are routinely given 3 daily injections to produce a bacteriologic cure. It is not uncommon to have some of our patients continue having mucoid to purulent discharges. However, with these intensive treatment schedules we have not been able to demonstrate gonococci by culture from the postpenicillin discharges.

Organisms are sometimes found on direct spread, following routine penicillin therapy, that are intra- and extracellular gram-negative diplococci. We feel that the finding of these organisms by direct spread and the persistence of a purulent discharge have been the bases for mistaken diagnoses of “penicillin-resistant gonorrhea.” We have never observed strains of gonococci refractory to intensive penicillin therapy.

Our impressions are based on information obtained from the treatment of 2,821 cases of culturally diagnosed and bacteriologically cured gonorrhea and of 226 cases of “nonspecific” urethritis. The culture medium used was Difco proteose No. 3 agar with 1 percent Difco hemoglobin and 1 percent Supplement A added. The cultures were incubated for 48 hours in the presence of 10 percent carbon dioxide at 35° C. The plates were examined, after spraying with a freshly

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From the U. S. Public Health Service Med- Center, Hot Springs National Park, Ark.

DITOR'S NOTE: In the January 1947 issue the JOURNAL OF VENEREAL DISEASE INFOR- TION (vol. 28, 1:1–6) an article by Major J. Pulaski was published on “Streptomycin erapy of Penicillin-Resistant and Sulfona- le-Resistant Specific and Nonspecific Ure- itis.” The present report, which is con- ry to the findings of Major Pulaski and co-workers, was submitted on May 5, 1947. that time Dr. Parkhurst stated somewhat ormally that “a $10 offer for anyone find- a case of penicillin-resistant gonorrhea” far had had no claimants, but had resulted increased referrals from county health de- tments.

prepared 1-percent solution of p-aminodimethylaniline monohydrochloride, for the presence of oxidase-positive colonies. If the oxidase-positive colonies contained gram-negative diplococci, using Hucker's modification of Gram's stain, the organisms were reported as being gonococci. Carbohydrate confirmation for diagnosis was not done with any gram-negative diplococci from oxidase-positive colonies. These organisms would have received a thorough biochemical study had they been subsequently found to be resistant to penicillin therapy. The above medium, minus Supplement A, was used to study the bacterial flora of patients having "nonspecific" urethritis. Spreads were made directly from the discharge material, and urine sediment was used for the cultural studies.

The bacterial flora of our cases of "nonspecific" urethritis have been found, by culture, to be comprised of various types of organisms: diplococci, staphylococci, streptococci, bacilli, diplobacilli, trichomonads, and diphtheroids. Irrigations with acriflavine, mercurochrome, argyrol, protargol, and potassium permanganate were used in an effort to eliminate the "nonspecific" discharges. Generally speaking, none of these gave satisfactory results in the majority of patients.

Since January 1947, the patients who received penicillin therapy here or elsewhere, and who continued to have a purulent discharge, were re-treated with daily injections of 300,000 units for 2 days. If this increased penicillin dosage did not result in the cessation of the discharge, the patient received 3 irrigations daily for 2 days of a solution of sodium penicillin containing 1,000 units per milliliter. If the discharge still persisted, the patient was treated with irrigations of streptomycin solution (1:1,000) 3 times daily for 2 days. So far, other than a few cases of Reiter's disease and of upper urogenital tract infections, we have not had a single case in which the discharge persisted following this routine. The discharge due to Reiter's disease has usually responded satisfactorily to typhoid-vaccine-induced fever therapy

The spread method has perhaps bee the basis, in a good many instances, fo the mistaken diagnosis of "penicillin-resistant gonorrhea." The use of Gram' stain by the bacteriologist has been o great value in the systematic classification of bacteria and subsequently an ai in the identification of pure cultures However, the value of Gram's stain i greatly reduced when applied to secretions for diagnostic purposes. Spread having thick and thin areas are of n value for the diagnosis of gonorrhea Only the thin portions may be examine microscopically, and these areas may b overdecolorized in an effort to decoloriz the entire slide. This results in certai gram-positive organisms losing their stai and appearing, falsely, as gram-negativ bacteria. The reliability of the sprea method with uniformly thin preparation and in experienced hands is greatest i acute gonorrhea. After the acute stage when numerous other bacteria appear, th spread method is not reliable.

To the technical peculiarities o Gram's stain, especially when applied t venereal discharges, is added the uncontrollable factor of personal interpretation of the microscopic findings. An excellent example of the discrepant result that can be expected with Gram-staine spreads was presented by Van Slyke Thayer, and Mahoney (*1*). The cervica secretions of 664 women were examine culturally by 3 laboratories using 3 different media. At least 1 of 3 culture was found positive in 140 of the 66 women. Spreads of all these cases wer submitted to 3 capable microscopists. O the 140 culture-positive cases, these examiners reported 88, 47, and 40 positiv spreads, respectively. With the 524 culture-negative cases there were 76, 13, an 4 positive spread reports. Results suc as these force us to place not too grea reliance on Gram-stained spreads for th diagnosis of gonorrhea. Whatever valu stained spreads may have as a diagnosti procedure is completely lost if stain other than the Gram stain are used, e. g methylene blue.

Infallibility cannot be ascribed to the ture method for the diagnosis or test cure of gonorrhea. However, if an es- lished culture procedure is followed to letter, it is generally agreed that the ture method is superior for the diag- sis of subacute and chronic gonorrhea. e reliability of the culture method, ether performed by experienced or in- perienced persons, is dependent upon eral factors, which need not be dis- ssed here. To these must be added interjection of individual modifica- ns of a satisfactory technic that often tract from the value of the method. r example, an inexperienced worker y Gram-stain oxidase-positive colonies om several cultures. These particular idase-positive colonies are found to nsist of gram-negative diplococci. ereafter, the Gram stain is dispensed th, and positive culture reports are ven for all oxidase-positive colonies. is is not a hypothetical example. The nerican Neisserian Medical Society und it necessary to call attention to d condemn such methods.

That the gonococcus can develop a re- stance in vitro has been demonstrated Bahn et al. (*2*), by Miller and Bohn- ff (*3*), and others. The resistance has en developed to greater concentrations an are usually maintained in vivo. The vitro production of penicillin resistance quires relatively long periods of time d the transferring of cultures from an vironment containing an infinitesimal nount of penicillin to one with only a inute increase in penicillin concentra- on. At present, it must certainly be uestioned whether a similar situation n be maintained in vivo and whether rtain humoral factors contribute, or are nergistic, in the production of penicillin sistance. The strains made resistant in tro lose their resistance if then grown a penicillin-free medium. Except for e report of Franks (*4*), we are not vare of the demonstration of penicillin sistance with freshly isolated strains. ranks, using a modification of the Ox- rd cup method with a penicillin concen- ation of 8,000 units per milliliter, was ot able to demonstrate even a small zone of inhibition with 4 strains from cases diagnosed as sulfonamide- and penicillin-resistant gonorrhea. The maximum resistance that Miller and Bohnhoff were able to attain, in vitro, was 21 units per milliliter. Lankford (*5*) did not find any naturally occurring penicillin-resistant strains with any of 203 strains tested, and the penicillin tolerance ranged from 0.0025 to 0.02 units per milliliter. In view of these findings, it is difficult to understand the simultaneous reporting of 4 strains with absolute resistance to 8,000 units.

Prior to the widespread use of cultural methods for determining the etiology of vulvovaginitis of children, the clinical and spread methods of diagnosis established these infections as being due, predominantly, to the gonococcus. With the advent of satisfactory culture methods, it has been found that a considerable percentage of these infections are not caused by the gonococcus. Is it not possible that we have an analogous situation with clinical and spread diagnoses of "penicillin-resistant gonorrhea"?

Conclusions

In a series of 2,821 cases of male and female gonorrhea, we have not encountered a single instance in which adequate penicillin dosage did not render the patient culturally free of the gonococcus.

The reliability of clinical and spread diagnoses of "penicillin-resistant gonorrhea" is questionable.

Pure-culture, carbohydrate-test-confirmed strains suspected of being resistant to penicillin concentrations usually maintained in vivo should be subjected to penicillin-tolerance tests before diagnosing the case as "penicillin-resistant gonorrhea."

It is our firm impression that the post-penicillin treatment discharges are nongonococcal, or "nonspecific" infections.

References

1. Van Slyke, C. J.; Thayer, J. D.; Mahoney, J. F.: Comparison of media and laboratory results in gonococcus cultures. Am. J. Syph., Gonor. & Ven. Dis., 26: 55–62, 1942.

2. Bahn, J. M.; Ackerman, H.; Carpenter, C. M.: Development in vitro of penicillin-resistant strains of the gonococcus. Proc. Soc. Exper. Biol. & Med., 58: 21–24, 1945.

3. Miller, C. P., Bohnhoff, M.: Studies on action of penicillin; development of penicillin resistance by gonococcus. Proc. Soc. Exper. Biol. & Med., 60 354–356, 1945.

4. Franks, A. G.: Successful combined treat ment of penicillin-resistant gonorrhea Am. J. Med. Sci., 211: 553–555, 1946

5. Lankford, C. E.: The in vitro tolerance o the gonococcus for penicillin. Am. J Syph., Gonor. and Ven. Dis., 29: 56–63 1945.

A Study of Preinoculation and Preincubation Factor in the Primary Isolation of Neisseria Gonorrhoeae

J. H. Schubert, Associate Bacteriologist; Matthew A. Bucca, Associate Bacteriologist and J. D. Thayer, Bacteriologist [1]

The primary isolation of the gonococcus constitutes an important step in the series of laboratory procedures for establishing a diagnosis of gonorrhea. Some difficulties in effecting the isolation are inherent in the methods of handling the specimens before inoculation of the culture media and of handling the inoculated material before incubation. This paper presents the methods and results of an experimental effort to resolve some of the difficulties.

A tube of broth containing a sterile cotton swab with which exudate is obtained is commonly employed for transporting exudates for gonococcic culture from a patient to the laboratory. The swab, which is used to inoculate a small area of an agar plate (*1*), is carried in the broth to prevent drying of the exudate and to reduce possible killing of the gonococcus. It is apparent that diluting the exudate with broth may interfere with the detection of the organism in lightly seeded specimens and that suspending it in broth does not assure viability of the gonococcus. Loss of viability may be an important factor in failure to isolate the gonococcus from material containing few organisms, especially if the time interval between collection of material and inoculation of the culture medium is very long (*2*).

Many substances have been added t broth in an effort to preserve the gonococcus for culturing. Cohn (*3*) state that many methods of obtaining viabl gonococci in human exudates were unsatisfactory, and concluded that the additio of cysteine hydrochloride to transpor media tended to prevent a decrease in th number of culturable organisms i sparsely populated exudates. Peizer an Steffen (*2*), using an enriched solid medium containing 0.05 to 0.03 percent cysteine hydrochloride, were successful i maintaining the viability of the gonococcus for 10 to 24 hours. The plates wer inoculated directly and held at room o refrigerator temperature before bein sent to the laboratory.

Experimental Methods

Two preinoculation factors were studied: the time lapse between collectio of the specimen and inoculation of th medium, and the manner of handling th exudate before inoculation of the medium

Two preincubation factors were studied: the presence of cysteine hydrochloride in the culture medium, and the presence of 10 percent carbon dioxide in th atmosphere in which the inoculated plate were kept.

Material for all studies consisted o cervical exudate from established case of gonorrhea. Collection of the materia was made with a dry, sterile, cotto swab. The inoculations, carried out i plicate, were performed by rolling the ab over a small portion of the agar rface. A wire loop was used to spread inoculum over the entire surface. ptone solution[2] was the carrying meum and, except as indicated, Peizer sma hemoglobin agar (*4*) was used the culture plates. Both swabs and tes were transported from clinic to oratory at the same time. Incubation s carried out at 35° C. in a 10-percent rbon dioxide atmosphere for 48 hours, er which all plates were examined for nococci.

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[1] From the Venereal Disease Research Laboratory, U. S. Marine Hospital, Staten Island 4, N. Y. Medical Director J. F. Mahoney in charge.

Preinoculation Factors

The effects of (1) the length of time sing between collection of the specien and inoculation of the medium, and (2) the manner of handling the exute before inoculation of the medium, re studied on the same material.

For one set of plates, inoculation was rried out in the clinic as soon as posle after collection. The exudate was nsferred from patient to culture plate means of the collecting swab. These tes are called clinic-direct transfers.

The swab employed in the clinic-direct nsfers was used to collect more exute. It was placed in an empty, sterile t tube, transported to the laboratory, en used for inoculating a second set plates, called laboratory-direct transrs.

In order to evaluate the effect of dilutg the exudate, a second swab was used obtain additional exudate. The imegnated swab was immersed in a test be containing peptone solution and gorously rotated to suspend the exute. In the clinic the swab was removed d used to inoculate. These are called nic-indirect transfers.

The swab was returned to the tube of ptone solution, transported to the labatory, and used for inoculating a fourth t of plates, called laboratory-indirect ansfers.

The order of taking samples of exudate from the patients for the direct and indirect transfers was alternated from day to day.

Preincubation Factors

Only plates inoculated by clinic-direct transfers were employed in studying the effects of (1) cysteine hydrochloride in the culture medium and of (2) the presence of carbon dioxide in the environmental atmosphere before incubation.

Peizer plasma hemoglobin agar (*4*) (without Nile blue A) containing 0.1 percent cysteine hydrochloride was used as the culture medium to determine the effect of cysteine on maintaining the viability of the gonococcus. The cysteine hydrochloride was added to the horse plasma-hemoglobin enrichment stock. Four culture plates were inoculated with each specimen; two contained cysteine, two were cysteine-free. The plates were transported to the laboratory, where they were separated into pairs; each pair consisted of a cysteine and a cysteine-free plate. One set of paired plates was placed in the incubator as soon as possible after reaching the laboratory; this process is referred to as immediate incubation. The other set was kept in closed jars at room temperature for 24 hours before being placed in the incubator; called delayed incubation.

To investigate the effects of keeping inoculated plates in an atmosphere of 10 percent carbon dioxide before incubation, two sets of plates were inoculated. Cysteine was not added to the culture medium. One set was treated as in delayed incubation. The other set was handled in the same way except that an atmosphere containing 10 percent carbon dioxide was substituted for air in the closed jars.

Results

The results obtained with 145 positive specimens in which the manner of inoculation was varied are presented in table 1. With single-plate inoculations, 96.5 percent positive cultures were obtained with the clinic-direct transfers as compared to 75.8 percent obtained with the laboratory-direct method. The clinic-indirect transfers resulted in 90.3 percent positive cultures as compared to 77.2 percent obtained with laboratory-indirect. A larger number of positive cultures was obtained by all methods when two plates were inoculated from the same specimen.

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[2] Peptone solution: Proteose peptone No. 3 ifco), 2.0 gm.; sodium chloride, 0.5 gm.; stilled water, 100 ml.

TABLE 1.—*A comparison of inoculation procedures for the isolation of the gonococcus (145 positive specimens)*

Type of transfer	Positive with 1-plate inoculation		Positive with 2-plate inoculation	
	Number	Percent	Number	Percent
Clinic direct	140	96.5	144	99.3
Laboratory direct	110	75.8	120	82.7
Clinic indirect	131	90.3	138	95.1
Laboratory indirect	112	77.2	121	83.4

Table 2 compares immediate and delayed incubation when 0.1 percent cysteine was present or omitted from Peizer's medium. The data show no practical difference in the two mediums.

TABLE 2.—*The survival of gonococci on Peizer medium with and without 0.1 percent cysteine*

Incubation	Total number positive cultures	Positive without 0.1 percent cysteine		Positive with 0.1 percent cysteine	
		Number	Percent	Number	Percent
Immediate	134	129	96.2	130	97.0
Delayed	134	97	72.3	101	75.3

Table 3 shows the effect of 10 percent carbon dioxide on the survival of the gonococcus when held at room temperature for 24 hours prior to incubation at 35° C. The average minimum and the average maximum room temperature was 24.6° C. and 27.3° C., respectively. The results show that 96.6 percent of the cultures survived when held at room temperature in 10 percent carbon dioxide as compared to 71.2 percent survival without carbon dioxide.

TABLE 3.—*The survival of gonococci wi and without 10 percent carbon dioxid*

Number positive cultures	Positive without 10 percent carbon dioxide		Positive with 10 percent carbon dioxide	
	Number	Percent	Number	Percent
118	84	71.2	114	96.6

Discussion

In the primary isolation of gonococ two types of transfer of exudate we compared: the exudate swabbed direct on the plate, and the indirect transfer exudate first suspended in broth and th swabbed on the plate. The inoculatio were made in the clinic and later, aft 3 hours, in the laboratory. The exuda on each swab, although not the same, w as nearly alike as was possible under t conditions of the experiment.

The results presented in table 1 sho that the number of positive cultures o tained by the clinic-direct transfer a about 19 percent higher than the labor tory-indirect transfer. This indicat that the laboratory-indirect transfer exudate, as described by Carpenter (1 may fail in the primary isolation of gon cocci. The greater number of positi cultures obtained by the clinic-dire transfer as compared with the clini indirect method can be explained on t basis of dilution. Inoculations made the clinic were always superior to tho made in the laboratory. Clinic-direct a clinic-indirect transfers resulted in 2 percent and 13.1 percent more positi cultures than did the respective labor tory transfer methods.

It should be pointed out that bett conditions for survival are obtained b placing the exudates directly on the cu ture medium than by carrying in a pe tone solution or on a dry swab.

There is practically no difference b tween results of the laboratory-dire and laboratory-indirect transfers. It thought that the effect of drying in t former was greatly inhibited by t mucoid character of the exudate.

all cases inoculation of duplicate
es shows a higher proportion of posi-
cultures than is obtained with single-
e inoculation. This is less noticeable,
ever, in results with clinic-direct
sfer.

he results in table 2 indicate that
eine has little or no effect on the effi-
of the medium for the primary iso-
n of the gonococcus. No toxic effects
steine were observed.

izer and Steffen (2) stated that more
tive cultures were obtained when
medium (containing 0.05 to 0.03
ent cysteine) was kept at room tem-
ture for 20 hours before incubation.
use of the medium with 0.1 percent
eine failed to reflect similar improve-
t in the results.

he approved technic of using carbon
ide for culturing the gonococcus was
e practical by the work of McLeod
l. (5). Since our findings showed no
rovement by the use of cysteine, treat-
t with carbon dioxide was studied.
le 3 shows that holding the plates in
tmosphere of 10 percent carbon diox-
for 24 hours at room temperature
re incubation produces 25.4 percent
e positive cultures than similar plates
without carbon dioxide. Usher and
n (6), utilizing 10 percent carbon
ide during shipment of specimens,
nd that successful recovery of the
ococcus was possible. The results
en here support their findings.

Conclusion

irect transfer of exudate from patient
culture plates in the clinic increases
number of positive cultures over that obtained with the indirect laboratory method in which the use of peptone solution is an intermediary step in the primary isolation of the gonococcus.

When incubation of the inoculated plates is delayed for 24 hours at room temperature, greater survival of the gonococcus is obtained if held in an atmosphere of 10 percent carbon dioxide.

The addition of 0.1 percent cysteine to Peizer's medium did not increase the survival of the gonococcus in cultures held 24 hours at room temperature before incubation.

References

1. CARPENTER, C. M.: The gonococcus. *In* Diagnostic Procedures and Reagents: Technics for the Laboratory Diagnosis and Control of Communicable Diseases. 1st ed. American Public Health Association, New York. Pp. 85–111. 1941.
2. PEIZER, L. R.: STEFFEN, G. I.: Improved method of transportation of material from gonococcal infections. J. Lab. & Clin. Med., 28: 1121–1126, 1943.
3. COHN, A.: Experiments on transportation of gonoccocal pus for culture purposes. Am. J. Syph., Gonor. & Ven. Dis., 26: 598–601, 1942.
4. PEIZER, L. R.; STEFFEN, G. I.: A modification of the horse plasma hemoglobin agar for primary culture of the gonococcus. Usefulness of Nile blue A in this medium. Ven. Dis. Inform., 23: 224–226, 1942.
5. MCLEOD, J. W.; COATES, J. C.; HAPPOLD, F. C.; PRIESTLEY, D. P.; WHEATLEY, B.: Cultivation of the gonococcus as a method in the diagnosis of gonorrhea with special reference to the oxydase reaction and to the value of air reinforced in its carbon dioxide content. J. Path. & Bact., 39: 221–231, 1934.
6. USHER, G. S.; STEIN, R.: A State-wide gonococcus culture service. A system utilizing the mail for transmission of specimens. Ven. Dis. Inform., 26: 77–80, 1945.

A Comparison of the Efficiency of Three Common Methods of Transportation of Gonorrheal Specimens[1]

Lenore R. Peizer, B. A., and Gustav I. Steffen, Ph. D.

Various methods have been devised to transport gonorrheal specimens to laboratories. Most methods, however, present important disadvantages. The most serious one—the loss of positive results—may be demonstrated by comparing the results of control cultures incubated within 6 hours after seeding with the results of cultures inoculated at the same time but incubated after a delay of 24 hours or longer.

The following methods of transportation were carried out experimentally:

Method 1.—A carrying tube with chocolate gelatin Nile blue A agar, into which the swab with infected material was inserted (*1*).

Method 2.—A tube 4″ x ⅜″ i. d. containing slanted plasma hemoglobin agar on which the infected material was streaked. The tube contained about 10 percent carbon dioxide (*2, 3*).

Method 3.—A rectangular bottle 2½″ x 2½″ x 4¼″, with screw cap, containing a ¼″ layer of plasma hemoglobin agar on the long side of the bottle (*4*). The agar was streaked with infected material.

The experiment was divided into 4 series of tests. In the first series method 1 was tested, using 257 specimens from the Women's Court Clinic. Infected material from each patient was streaked on a control plate of plasma hemoglobin agar, and then the same swab was inserted into chocolate gelatin Nile blue A agar in a carrying tube. Control plates were incubated within 6 hours after inoculation. The tubes containing the swabs were left at room temperature (22° to 24° C.) for 24 hours, after which time the swabs were streaked on plasma hemoglobin agar plates. These plates were incubated 40 hours at 36° C. in an
mosphere reinforced with 6 to 8 perc
carbon dioxide. Comparison was m
between corresponding control and t
cultures.

The second series of 745 specim
from the Women's Court Clinic was u
for testing method 2. Control plates a
the tubes containing slanted bl
plasma hemoglobin agar were inocula
with material from the same sw.
Plates and tubes were incubated wit
6 hours after seeding. The tubes w
removed from the incubator at the e
of 24 hours and left at room tempe
ture for another 24 hours. The tu
showing poor growth were returned
the incubator for another day. M
tubes had good growth at the end of
hours of incubation, and these cultu
were compared with corresponding c
trols. The control plates correspondi
to the reincubated tubes were placed
the refrigerator for a day and then co
pared with the test cultures.

A third series of 1,577 specimens tak
at the Fort Greene Health Center
Brooklyn were used to test method
Each control plate and a bottle conta
ing a layer of agar were streaked wi
the same swab. The control plates we
incubated within 6 hours after inocul
tion. The seeded bottles were left
room temperature for 24 hours, and th
the screw caps were loosened and t
cultures incubated for 40 hours. Cor
sponding control plates and bottles we
compared.

Results obtained from the compariso
of methods 1, 2, and 3 with control c
tures incubated within 6 hours aft
seeding are shown in table 1.

(1) Of 257 specimens examined by c
ture plates incubated within 6 hours a
by transport method 1: 62 specimens we

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[1] From the Bureau of Laboratories, New York City Department of Health.

TABLE 1.—*Results obtained with 3 methods of transportation*

ransportation	Total number of specimens	Cultures positive on control plates incubated within 6 hours		Cultures positive from transportation specimens and negative on control plates		Cultures positive on control plates and positive from transportation specimens		Cultures positive on control plates and overgrown from transportation specimens		Cultures positive on control plates and negative from transportation specimens	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
ethod 1	257 Women's Court Clinic (females).	62	100.0	0	-------	18	29.03	20	32.26	24	38.71
ethod 2	745 Women's Court Clinic (females).	197	100.0	0	-------	173	87.81	18	9.14	6	3.05
ethod 3	1,577 Fort Greene Health Center (females and males).	532	99.07	5	0.93	511	95.16	8	1.49	13	2.42

ositive on the control plates. Of the 2 specimens, 18 corresponding specimens 29.03 percent) were positive when ransport method 1 was employed. In ddition 20 specimens (32.26 percent) ere overgrown and 24 specimens (38.71 ercent) were negative when transported y method 1, but on the control plates hese 44 specimens were positive.

(2) Of 745 specimens used to test ransport method 2: 197 specimens were ositive on the control plates incubated ithin 6 hours. There were 173 correponding specimens (87.81 percent) posiive when transport method 2 was used. ighteen transported specimens (9.14 ercent) were overgrown and 6 speciens (3.05 percent) were negative, but n the control plates these 24 specimens ere positive.

(3) Of 1,577 specimens examined by ethod 3: 532 were positive on control lates. In addition, there were 5 speciens positive in the transport bottles which were negative on control plates. here were 511 specimens positive both n control plates and in the transport ottles, or a percentage of 95.16 of the otal of 537 positive specimens. Only 8 ransported specimens (1.49 percent) were overgrown and 13 specimens (2.42 ercent) were negative, but these 21 pecimens were positive on control plates.

Specimens of the fourth series were aken at the Central Clinic in Manhattan from 87 male cases of acute gonorrhea with profuse discharge. Four specimens were taken from each patient at the same time. Each of the first 3 swabs with infected pus was used for the seeding of a horse plasma-hemoglobin agar plate and was then inserted into chocolate gelatin Nile blue A agar in a carrying tube, as designated in method 1. The fourth swab with pus was used to streak a control plate which was incubated within 6 hours after inoculation. Corresponding tubes and plates were kept at room temperature, one set for 24 hours, another set for 48 hours, and a third set for 72 hours.

The results in table 2 show the effects of delay in incubation on positive specimens transported by method 1, and on plasma hemoglobin agar plates inoculated at the same time. All 87 specimens used in this study were positive on the control plates incubated within 6 hours after seeding. At the end of 24 hours of delay in incubation, 84 specimens (96 percent) were positive on plasma hemoglobin agar plates, and 18 specimens (20 percent) were positive when transport method 1 was used. At the end of 48 hours of delay in incubation, 43 specimens (49 percent) were positive on plates, and 7 transported specimens (8 percent) were positive. At the end of 72 hours of delay, 9 specimens (10 percent) were positive on plates, but all specimens were negative by transport method 1.

TABLE 2.—*Method 1. Transportation results at the end of 24, 48, and 72 hours of delay as compared with results from plates streaked at the same time from acute male cases*

Number of specimens from known positive males	Incubation within 6 hours		Incubation delayed 24 hours				Incubation delayed 48 hours				Incubation delayed 72 hours			
	Cultures positive on control plates		Cultures positive on control plates		Cultures positive by method 1		Cultures positive on control plates		Cultures positive by method 1		Cultures positive on control plates		Cultures positive by method 1	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
87 Central Clinic (males).	87	100.0	84	96.5	18	20.6	43	49.4	7	8.0	9	10.3	0	------

Other methods of transportation trial-tested in our laboratory were the Heathman-Higginbotham method (*5*) and the Cox method (*6*). The first showed a loss of about 50 percent of positive results, and the second showed a loss of about 62 percent after 18 to 24 hours of delay in incubation of culture material. Crystal violet, when employed in effective amounts in transportation carrying tubes as in the Cox method, inhibits many of the gram-positive concomitant organisms, but it too often destroys the gonococci present in the specimens (*7*).

The three transportation methods present various advantages as well as disadvantages.

Method 1.—When controlled with immediately incubated cultures this method seems to produce too great a loss of positive results (71 percent in 24 hours of delay in incubation). Nile blue A does not sufficiently inhibit many of the concomitant organisms. Only certain strains of a contaminating species are inhibited. The dye is useful when incorporated in agar plates for direct culture (*2*). When dye-resistant contaminants are spread by the swabs from delayed incubation specimens to enriched moist agar plates, they grow very luxuriantly and often completely inhibit growth of gonococci. In this method, different media are used for transportation and for incubation of specimens.

Method 2.—This method employs a slanted culture medium and the incubated transportation tube is the culture used in diagnosis. The tubes may be used up to 6 weeks after preparation, since the corks prevent evaporation. Incubation stations are required throughout the State in order to incubate specimens within 6 hours. This is not always possible in certain rural communities. Delayed incubation of seeded tubes was tested in this laboratory on 100 male cases of acute gonorrhea and showed a decline in positive results from 88 percent to 62 percent in 24 hours of delay. In the mail, some of the positive cultures became overgrown because the excess moisture retained in the corked tubes spreads contaminants. Isolation from a slant in a small tube is difficult, time-consuming, and often impossible, and this factor is one of the reasons for the reduction in the number of cultures identified. The method requires the addition of carbon dioxide to each separate tube.

Method 3.—This procedure yields the greatest number of positives and the isolation of pure cultures for identification is relatively easy. It is more time-consuming to dispense medium into screw-capped bottles than into tubes. However, this is the simplest method to carry out and is the most practical of the three tested.

All three methods are conveniently set up in containers for transportation, and the media in the tubes and bottles remain good for long periods of time because of prevention of evaporation.

Summary and Conclusions

A comparison of three methods of ransportation shows that:

1. Method 1 is not satisfactory, inasmuch as over 70 percent of positive reults are lost when incubation of specimens is delayed 24 hours.

2. Method 2 is effective, inasmuch as 7.81 percent of positive specimens are ecovered. However, this method reuires the addition of carbon dioxide to ach separate specimen, as well as incuation of specimens within 6 hours, which is not practical.

3. Method 3 appears to be the most fficient transport method of the three ested. When this method was employed, 5.16 percent of positive specimens were ecovered after an incubation delay of 4 hours. Because the inoculation area s quite large, it is possible to isolate without difficulty a large percentage of positive cultures for identification.

References

. Hirschberg, N.: Solid medium for transportation of delayed gonococcus cultures. J. Lab. & Clin. Med., 29: 314–318, 1944. Correction, 29: 559, 1944.

2. Peizer, L. R.; Steffen, G. I.: A modification of the horse plasma-hemoglobin agar for primary culture of the gonococcus. Usefulness of Nile blue A in this medium. Ven. Dis. Inform., 23: 224–226, 1942.

3. Usher, G. S.; Stein, R.: A State-wide gonococcus culture service. A system utilizing the mail for transmission of specimens. Ven. Dis. Inform., 26: 77–80, 1945.

4. McClure, W. B.; Miller, A. M. A.: Gonococcus culture outfit for specimens submitted by mail. Canad. J. Pub. Health, 37: 146–148, 1946.

5. Heathman, L. S.; Higginbotham, M.: Culture examination for N. gonorrhoeae. Comparison of direct and shipped specimens for culture. Am. J. Syph., Gonor. & Ven. Dis., 26: 602–606, 1942.

6. Cox, O. F.; McDermott, M. V.: Methods of transmitting material to the laboratory for gonococcus cultural studies. Am. J. Pub. Health, 33: 149–152, 1943.

7. Sulkin, S. E.; Willett, J. O.: Evaluation of blood-dye diluent for transportation of material from gonococcic infections. Ven. Dis. Inform., 25: 138–143, 1944.

Two Reports[1] on Out-Patient Attendance for Treatment of Syphilis, Using Penicillin in Oil-Beeswax

I. A Study of Clinic Attendance

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Arsenical treatment of early syphilis, as administered to out-patients in clinics, is successful in the majority of cases only when carried out with regularity to completion of the course of therapy. A generally accepted minimum in this type of therapy is defined as not less than 20 arsenical and 20 heavy-metal injections, or the equivalent, given during the course of a year (*1*). However, 30 injections of an arsenical and 40 of bismuth over a period of 70 weeks is even more effective, but it has been estimated that only 30 percent of all syphilis patients under this regimen received total treatment (*2*). In the Kent County (Delaware) clinics, of those patients admitted for treatment of early syphilis in 1945, only 20 percent received the minimum of 3.3 injections per month by the end of 1946.

A major advantage of penicillin—regardless of what its long-term efficacy may prove to be—is that the course of therapy, as given in a rapid treatment hospital, is so short that nearly 100 percent of patients complete the scheduled treatment.

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[1] Aided by a grant from the U. S. Public Health Service.

However, hospitalization has many disadvantages, particularly the cost to the State and to the Federal government, and to the patient in the loss of working time and earnings. Many general hospitals which might provide such treatment are overcrowded, and need their beds for more acutely ill patients; and many patients prefer to be treated at the clinic or at their doctor's office.

There is no medical need for hospitalization when penicillin in oil-beeswax (POB) is used in the once-a-day schedule, as has been recommended (*3*). The treatment may be given just as effectively in the clinic, provided that patients report every day as scheduled. The purpose of this study was to find out whether they would do so.

Selection of Patients [2]

This study includes 33 new clinic patients, who had been admitted to the Kent County clinics less than 3 months before receiving the first POB injection. Ten were previously untreated, 18 had received less than 5 injections, and 5 had received less than 10 arsenic or bismuth injections while waiting for the start of their POB therapy. The remainder were old clinic patients who had not had minimal metal chemotherapy for various reasons, such as arsenic sensitivity, poor veins, or delinquency in attendance.

It seems logical to assume that previously treated patients who have not had minimal metal chemotherapy, particularly those who have had the least amount of such therapy, would receive some benefit from penicillin treatment regardless of the stage or duration of the disease. Furthermore, the clinic benefits by supplemental rapid treatment of such cases, in savings of nursing time and costs, and in lightening the burden of case holding and all other efforts connected with irregularly attending patients.

Each patient selected for the study was interviewed prior to treatment, to insure his understanding of the importance of reporting each scheduled day. After the patient began therapy, he was reminded each day of the importance of regularity.

Classification of Patients

At the time this paper was written, a total of 107 patients had been treated in the clinic with penicillin in oil-beeswax. Their ages ranged from 5 years to 52 years. Of the total, 43 were male and 64 were female; 8 were white persons and 99 were Negroes.

There were 33 new clinic patients, of whom 4 had primary syphilis, 14 had secondary syphilis, and 15 had early latent syphilis. This group included 2 pregnant women.

There were 74 old clinic patients in the series, of whom 49 (including 3 pregnant women) had been highly delinquent under metal chemotherapy; 5 had been arsenic reactors; 14 had received less than 20 routine injections and were placed on penicillin in oil-beeswax to complete their treatment; and 6 had received more than 30 routine injections but expressed willingness to complete their treatment with penicillin.

Procedure

Clinic sessions to administer the POB therapy were held about a month apart, in each of 4 towns successively. The 6-day clinic ran from Monday through Saturday; the 7-, 8-, and 10-day clinics resumed on the second Monday. Sessions lasted 1 hour, except when held as part of the regular venereal disease clinic. Penicillin in oil-beeswax was administered in a single daily dose of 300,000 or 600,000 units, depending on the number of days scheduled and attended, the age of the

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[2] Selection of patients and administration of treatment by the author and Drs. W. T. Porter, B. Barnes, S. L. Fox, and V. Hudson.

ent, and the stage of the disease. To-
loses averaged 3,600,000 units.

ings

50 patients on the 6-day schedule, issed the fourth day. A second pa- was delivered of a baby on the th day, and received the last 3 treat- ts at home.

21 patients on the 7-day schedule and tient on the 8-day schedule, no days missed.

35 patients on the 10-day schedule, ssed 1 day and 3 missed 2 days.

LE 1.—*Number of days of treatment missed*

edules	Number of patients treated	Days missed			
		None	1	2	3
	50	48	1	0	[1]1
	21	21	0	0	0
	1	1	0	0	0
y	35	23	9	3	0
Total	107	93	10	3	[1]1

patient pregnant; treated at home following ery on fourth day of treatment.

otal absences were: 4 on the first ; 2 on the second, fourth, fifth, and h days; 1 on the third, seventh, th, and ninth days; and none on the h day.

LE 2.—*Particular treatment day missed*

dules	Number of patients treated	Treatment day missed									
		1	2	3	4	5	6	7	8	9	10
, and ay	72	0	0	0	[1]2	[1]1	[1]1	0	0	---	--
y	35	4	2	1	0	1	1	1	1	1	0
tal	107	4	2	1	2	2	2	1	1	1	0

patient pregnant; treated at home following ery on fourth day of treatment.

s might be expected in a rural com- nity, transportation difficulties caused eral absences. There were no reasons en by the remaining patients who sed. Three nursing visits and two ephone calls were made to delinquent ients with early syphilis.

If a patient missed a treatment day because of apparent lack of interest, his schedule was not prolonged to make up missed treatment unless it was considered advisable as a public health measure. In any event, no patient received less than a total of 2,400,000 units of penicillin in oil-beeswax.

There were only 2 known reactions (moderate soreness at the site of injection) among the 107 patients, and in neither case did the reaction cause a lapse in attendance.

Summary and Conclusions

1. Of 107 patients treated for syphilis on an out-patient basis, using 1 daily injection of penicillin in oil-beeswax on 6-, 7-, 8-, and 10-day schedules, only 2 moderate reactions were noted.

2. Eighty-seven percent of the patients attended all scheduled days; 10 percent of the patients completed 90 percent of the treatment; and 3 percent of the patients completed 80 percent of the treatment.

3. The series included 49 former clinic patients who had previously been highly delinquent under the weekly arsenical schedule; their record of attendance under the penicillin in oil-beeswax schedule was equally as good as the record of those patients never previously treated.

4. From the viewpoint of daily attendance this method is suggested as practical for rapid treatment of clinic out-patients. It also permits a clinic to handle a greater patient load with far less effort than is possible when using the weekly arsenical schedules.

5. Penicillin in oil-beeswax is suggested for previously untreated patients as well as for previously treated patients who have not had minimal metal chemotherapy.

Addendum

In June 1947, an additional series of 16 patients was treated with the POB regimen at the Kent County clinics. Although data on their attendance were received too late to be incorporated with the foregoing material, the additional information is here presented as further substantiation of the viewpoint that this is a practical method in the rapid treatment of out-patients. Of 15 patients on the 7-day schedule, 14 attended for 7 days; and 1 patient missed the third day of treatment. One patient on the 6-day schedule attended for 6 days.

References

1. American Public Health Associati Health Practice Indices, 1943–44. 33.
2. Heller, J. R., Jr.: The rapid treatm center program. 1. Medical tre ment. Am. J. Nursing, 46: 542–5 1946.
3. Thomas, E. W.; Landy, S.; Cooper, Rapid treatment of early syphilis w penicillin in beeswax and oil. J. V Dis. Inform., 28: 19–23, 1947.

II. Attendance Record of Patients Treated by Private Physicia

R. B. Aiken, M. D., Secretary and Executive Officer, Vermont Department of Public Health

In October 1946, the State Department of Public Health of Vermont arranged for the free distribution of penicillin in peanut oil-beeswax to private physicians for the treatment of cases of early syphilis. In a letter sent to all physicians in the State outlining the procedures for obtaining the drug, it was recommended that patients be treated with 4,800,000 units of penicillin in peanut oil-beeswax (600,000 units administered at 1 visit each day for 8 days). The penicillin was made available through a research project sponsored by the United States Public Health Service; the object was to find out whether or not patients will return on successive days for treatment, and whether they will return in 1 month, 3 months, 6 months, 9 months, and at the end of 1 year for check-ups, and once a year for 5 years thereafter. The present preliminary report shows the regularity of out-patients in obtaining treatment on successive days.

From October 1946 through May 1947, 101 patients were treated by 45 physicians with penicillin in peanut oil-beeswax furnished by the Vermont Department of Public Health. The patients treated were white, and were about equally distributed by sex. Eighty-two percent of the cases were diagnosed as primary or secondary syphilis. Fifteen of the 101 patients were treated by schedules other than the one recommended by the Department of Public Health; these schedules varied in total dosage of penicillin from 2,400,000 units to 6,000,000 units, and in time requir for administration from 8 days to 16 da

All patients who were treated for ea syphilis with the penicillin in oil-beesw supplied by the State received the follo ing notice:

"This treatment is being furnished you free of charge for research purpos Consequently, it is extremely importa that you return to your physician eve day for 8 days. Following your comp tion of treatment, it will be necessary you to return to your doctor at the end 1 month, 3 months, 6 months, 9 mont and 1 year for blood tests, in order make certain that your condition is sat factory. This is for your own protecti and for the protection of others. Follo ing this, it is requested that you check your blood once a year for 5 years. ther keep this schedule or memorize it that you will know when to return to yo physician. Any further questions co cerning this treatment will be answer by your own doctor. You should coop ate with any further suggestions that has in addition to this treatment. T results of this research work are entir dependent on your cooperation in th matter and are important in that this ty of schedule may be used in many oth States if it functions properly in the Sta of Vermont."

In table 1 a breakdown of regulari of attendance is shown for the 86 p tients treated with 4,800,000 units (60 000 units a day for 8 days). Seven

LE 1.—*Regularity of attendance of atients treated on an out-patient basis 4,800,000 units of penicillin in peanut il-beeswax, 600,000 units daily for 8 ays)*

	Number	Percent
l cases treated	86	100.0
Completed treatment in 8 consecutive days	70	81.4
Lapsed without completing treatment	1	1.2
Treatment required from 9 to 11 days	15	17.4
son for prolongation of treatment period:		
Doctor did not have office hours on certain days	4	4.6
Treatment reaction	5	5.8
Personal reasons	6	7.0

81.4 percent, of these patients com-
ted treatment in 8 consecutive days.
e patient, or 1.2 percent, lapsed with-
t completing treatment. Fifteen, or
4 percent, of the patients completed
atment in 9 to 11 days.

he reactions to penicillin necessitat-
the prolongation of treatment from
o 3 days (5 patients) are listed below:

1. Fever of 107° F.
2. Nausea and vomiting, headache, fast pulse.
3. Severe local reaction.
4. Extreme soreness; patient too sore to walk.
5. Questionable penicillin reaction; patient stated she was too sick to come or call in.

Personal reasons for irregularity of attendance were as follows:

1. Transportation difficulties (2 patients).
2. Misunderstanding by patient as to time of appointment (2 patients).
3. Accident in family (1 patient).
4. No explanation given (1 patient).

All of the 15 patients treated with other schedules of therapy completed the treatment regimen. In 5 instances, information on irregularity of treatment was not available. Of the 10 remaining patients, 9 completed treatment on successive days; the other patient was very uncooperative and had 2 lapses of 1 day each.

To summarize: In the total series of 101 cases treated on an out-patient basis, only 1 (1.0 percent) failed to complete treatment. Only 16 (16.8 percent) of the 95 patients who completed treatment and on whom data were available, failed to obtain treatment on successive days.

CURRENT LITERATURE

NOTE: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the past 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

. J. PUB. HEALTH, NEW YORK

he medical social worker in a county health department. A cooperative plan between a health and welfare department. Jess B. Spielholtz and Iva Val Brakel. 37: 733–738, June 1947.

AM. J. SYPH., GONOR. & VEN. DIS., ST. LOUIS

*The effect of hyperpyrexia on the therapeutic efficacy of penicillin in experimental syphilis. Harry Eagle, Harold J. Magnuson and Ralph Fleischman. 31: 239–245, May 1947.

*Observations on therapeutic efficacy in experimental syphilis of calcium penicillin in oil and beeswax and their bearing on its use in man. Harry Eagle, Harold J. Magnuson and Ralph Fleischman. 31: 246–256, May 1947.

*The local chemical prophylaxis of experimental syphilis with phenyl arsenoxides incorporated in ointments and in soap. Harry Eagle, Harold J. Magnuson and Ralph Fleischman. 31: 257–263, May 1947.

*Reinfection in experimental syphilis in rabbits following penicillin therapy. R. C. Arnold, J. F. Mahoney and J. C. Cutler. 31: 264–267, May 1947.

*The treatment of gonorrhea with streptomycin. Ben D. Chinn, Lawrence E. Putnam, S. Ross Taggart and Robert P. Herwick. 31: 268–270, May 1947.

*A comparison of the in vitro susceptibility of the gonococcus to penicillins G and X. Monroe J. Romansky and Eugene V. D. Robin. 31: 271–276, May 1947.

*Chancroid in women in Manila. Dolores G. LaO and Ray E. Trussell. 31: 277–281, May 1947.

*Incidence of asymptomatic lymphogranuloma venereum in a municipal hospital. A survey based on 1,512 cases. Louis T. Wright, Gerald A. Spencer and Abraham Oppenheim. 31: 282–288, May 1947.

The effect of hyperpyrexia on the therapeutic efficacy of penicillin in experimental syphilis. Harry Eagle, Harold J. Magnuson and Ralph Fleischman. Am. J. Syph., Gonor. & Ven. Dis., 31: 239–245, 1947.

The authors discuss a study of early rabbit syphilis in which the therapeutic action of penicillin was strikingly enhanced by a simultaneous increase in body temperature, the effective dose of penicillin being decreased to one-eighth to one-tenth of its normal level.

The rabbits were first inoculated intratesticularly with an emulsion prepared from acute testicular syphilomas. Five to six weeks later, after infection had been confirmed by darkfield examination, the animals were secured in a closed fever box, described in detail, wherein an attempt was made to maintain the temperature at 104° to 106° F. for a period of 8 to 10 hours. In order to concentrate the penicillin therapy during the fever session, 75 percent of the total dose was administered during the period of confinement in the box, 6 equal intramuscula injections being given at 2-hour interval The remaining 25 percent of the drug wa given in 10 equal injections administere at 2-hour intervals, 2 injections before in duction of fever and 8 after removal o the rabbits from the box.

Two groups of animals were used a controls; one small group was given feve therapy alone with no penicillin, while previously studied group which had re ceived 16 equal injections at 2-hour inter vals served as a control of the efficacy o penicillin alone. Lymph node transfer were carried out 6 months after comple tion of treatment; if darkfield examina tion of the testes proved negative afte 90 to 105 days, the original rabbits wer adjudged cured.

The results of treatment with feve alone and with penicillin plus fever ar summarized in table form. It was foun that 3,000 units of penicillin per kilogra of body weight in association with feve cured one-half the rabbits, while 8,00 units cured 90 percent. In rabbits treate by penicillin alone, however, 30,000 unit per kilogram of weight were required t cure one-half the animals, while 64,00 units were required to cure 90 percent In brief, a single 10-hour fever sessio was found to increase the therapeuti efficacy of penicillin at least eight- t tenfold.

Observations on therapeutic efficac in experimental syphilis of calcium penicillin in oil and beeswax and their bearing on its use in man. Harry Eagle Harold J. Magnuson and Ralph Fleischman. Am. J. Syph., Gonor. & Ven. Dis. 31: 246–256, 1947.

The authors present a study undertaken in February 1944 to determine the efficacy of peanut oil-beeswax suspensions in the treatment of experimental syphilis, in comparison with the use o the sodium or calcium salt in aqueou solution. It was sought to establish the fact that a single injection of penicillin in oil and beeswax, with the resultant prolonged low blood level, was more effective therapeutically than a single injection o

ueous solution and equally as ef-
e as small multiple injections.

bits were treated 5 to 7 weeks after
esticular inoculation. Suspensions
cium penicillin were prepared in
t oil containing (1) no beeswax, (2)
ent by volume, and (3) 6 percent
olume. Syphilitic rabbits were
d by 4 successive daily injections
each of these preparations. It was
that the total dosage of penicillin
sary to cure 50 percent of the ani-
fell from 39,000 to 8,000 to 3,500
per kilogram as the concentration
swax was increased from 0 to 3 to
cent by volume, while the dosage
sary to cure 90 percent of the ani-
fell from 80,000 to 16,000 to 8,000
per kilogram.

following 5 different treatment
ules were tried in an effort to de-
ne the effect of the method of ad-
tration on the therapeutic efficacy
cium penicillin: (1) single massive
ion; (2) 2 injections at 8-hour in-
ls; (3) daily injections for 4 suc-
e days; (4) injections twice daily
days; and (5) injections twice
y for 8 weeks. It was found that as
otal number of injections was in-
ed from 1 to 4 to 16, the total cura-
lose of penicillin (CD_{50}) fell corre-
ingly from 50,000 to 3,500 to 800
per kilogram, respectively. Thus,
concentrations of penicillin acting
ng aggregate periods of time, given
any small injections, were seen to
r more effective than high concen-
ns for short periods given in a few
injections.

this study, the only schedules in
the same total number of injec-
was given at different time inter-
were schedules in which the same
of 16 injections of penicillin in oil
beeswax was given twice daily for
s and twice weekly for 8 weeks, the
ive doses of which were 800 and
units per kilogram, respectively.
ugh this suggests an optimum inter-
less than 3 days between injections,
difference was seen in the thera-
c efficacy of penicillin when given
twice daily as against twice weekly. In this connection, the possibility of effective ambulatory treatment of man with penicillin in oil and beeswax as frequently as twice daily or as infrequently as twice weekly is therefore noted.

In determining the relative therapeutic efficacy of penicillin in aqueous solution and in oil-beeswax suspension, when the 2 types of penicillin were given once daily for 4 days, the CD_{50} levels of the aqueous and oily suspensions were, respectively, 50,000 and 3,500 units per kilogram. One unit of penicillin suspended in oil and beeswax was then as effective as 14 units in aqueous solution.

It was therefore demonstrated in experimental syphilis in rabbits that the relative superiority of the oil-beeswax preparation of penicillin decreased as the duration of treatment was prolonged and the number of injections increased, and that this preparation was consistently more effective than the aqueous solution of penicillin.

The local chemical prophylaxis of experimental syphilis with phenyl arsenoxides incorporated in ointments and in soap. Harry Eagle, Harold J. Magnuson and Ralph Fleischman. Am. J. Syph., Gonor. & Ven. Dis., 31: 257–263, 1947.

In connection with a previous study in which a number of amide-substituted phenyl arsenoxides, actively spirocheticidal in vitro, were shown to be prophylactic in experimental rabbit syphilis when applied as a solution in propylene glycol to an incision in the skin of the animal, the authors present this paper describing further experiments to determine the prophylactic efficacy of a few representative compounds when incorporated in ointments and when dissolved in dilute soap (aqueous solution of 5-percent potassium oleate).

In this study, rabbits were inoculated in a superficial skin incision on the back by the inunction for 3 minutes of a spirocheticidal suspension obtained from a testicular chancre and containing 10 organisms per cubic centimeter. Four hours later, the arsenical preparations were applied by inunction for a period of 3 minutes over the same area.

Two types of ointments were used, one with a continuous aqueous phase (oil-in-water) and one with a continuous fatty phase (water-in-oil); several examples of each type of ointment were prepared. In the soap solutions, the arsenical was dissolved in a minimum volume of 1 N NaOH, diluted with approximately 5 volumes of water, and neutralized (to pH 9) with 1 N HCl. A concentrated solution of potassium oleate was then added, with enough water to form the desired concentration of arsenical in 5 percent potassium oleate. Results showed that only occasionally were more than three-quarters of the animals protected, even at the highest concentration of arsenical in the ointment (0.4 percent).

In the experiments with soap solution, an 0.08-percent concentration of the arsenical in dilute soap solution applied 4 hours after inoculation prevented half the animals from developing syphilis, while a 0.3-percent concentration protected 90 percent of the animals. These results compare favorably with those obtained with the same compound in propylene glycol, the soap solution itself being wholly inert.

The results indicate that soap, soap powder, or soap solution containing the arsenical in effectively spirocheticidal concentration may be of value in the prophylaxis of syphilis and it is suggested that the prophylactic efficacy of these arsenicals in man should perhaps be determined by a relatively small study in a group of volunteers deliberately inoculated with a known spirochetal suspension and subsequently treated by one or more of these prophylactic procedures.

Reinfection in experimental syphilis in rabbits following penicillin therapy. R. C. Arnold, J. F. Mahoney and J. C. Cutler. Am. J. Syph., Gonor. & Ven. Dis., 31: 264–267, 1947.

The authors report on a study of experimental early syphilis in the rabbit conducted to determine the incidence of reinfection which could be produced with-
in 10 days after the completion of
quate penicillin therapy. Observa
concerning reinfection after thera
latent syphilis will be reported later,
stated.

For this study, an emulsion of S
chaeta pallida was prepared by mi
fresh testicular syphilomas in a hea
fusion rabbit serum medium, the emu
containing 1 to 3 actively motile s
chetes per microscopic field. This tes
lar emulsion was injected in amoun
0.25 cc. into normal male rabbits to
duce scrotal chancres. The diagnos
syphilis was confirmed in all instance
demonstration of S. pallida in the c
cres, which developed in approximat
to 5 weeks. Node transfers, which
the test of cure, were made by remo
the inguinal and popliteal lymph n
from each experimental animal.
nodes were minced and implanted
tally in normal rabbits.

Three groups of rabbits are discu
Group A, consisting of 32 rabbits
scrotal lesions of acute syphilis of
8 weeks' duration, was treated with
units of sodium penicillin per kilog
of body weight, administered eve
hours in 36 intramuscular inject
Since all node transfers from this g
were negative, it is evident that
group was cured by the therapy used.
group B, 37 animals with acute syp
of 6 to 8 weeks' duration were tre
with 300 units of sodium penicillin
kilogram every 2 hours for 48 intra
cular injections. Ten days after the
injection, the animals were reinocul
at a new site with the same strai
spirochetes. Ten of the rabbits d
oped darkfield positive chancres at
site of inoculation, while 27 devel
a symptomless invasion of syphilis
firmed by positive node transfers.
was thus demonstrated that reinfec
with a homologous strain could occu
days after the completion of adeq
penicillin therapy. In group C, 37
treated rabbits with acute syphiliti
sions of the left scrotum were inocul
6 to 8 weeks after the original ino
tion with the same spirochete emul

in group B. The original chancres d spontaneously, but no new lesions philis indicating reinfection or su- fection were produced at the site e second inoculation.

e treatment of gonorrhea with tomycin. Ben D. Chinn, Lawrence utnam, S. Ross Taggart and Robert erwick. Am. J. Syph., Gonor. & Ven. 31: 268-270, 1947.

a discussion of the possibility of development of therapeutic resist- to penicillin in the treatment of rrhea, the authors present a prelim- study in which 4 men with acute rrheal urethritis, confirmed by smear culture, were each given 0.1 gm. of tomycin sulfate dissolved in 3 cc. of iologic salt solution at hourly inter- for 5 doses. Criteria of cure con- d of 3 consecutive negative cultures in 10 days after therapy and the nce of or marked improvement in cal findings.

l 4 patients responded promptly in 24 to 48 hours with a reduction essation of the urethral discharge. ures following prostatic massage negative at each examination.

view of the successful use of strep- cin in this study, a larger series of atients was treated in order to de- ine the optimum dosage. Fifty pa- ts were cured by a single injection of to 0.5 gm., while 20 of 22 persons cured by a single injection of 0.2 the 2 failures being later cured by eatment with 0.2 gm. of streptomy- Only 2 of 5 patients were cured with m., however; 2 of these failures were d by re-treatment with 300,000 units enicillin in peanut oil and beeswax the other by re-treatment with 0.2 of streptomycin. Toxic reactions in cases were mild with no skin reac- s noted.

reptomycin therefore appears to be ffective drug in the treatment of gon- ea, one which can be administered amuscularly as a single dose in er solution in contrast to penicillin h requires administration in multi- loses or in oil-wax mixtures.

A comparison of the in vitro susceptibility of the gonococcus to penicillins G and X. Monroe J. Romansky and Eugene V. D. Robin. Am. J. Syph., Gonor. & Ven. Dis., 31: 271-276, 1947.

In a previous study in which 175 patients with gonorrhea were treated with a single injection of penicillin in beeswax and peanut oil, 53 strains of gonococci had in vitro susceptibility tests done against commercial sodium penicillin, and it was found that the range of susceptibility in these strains was 0.00195 to 0.0625 units per cubic centimeter. The purpose of the present paper is to present the data on these 53 strains of gonococci and to report on a subsequent study in 1945, showing a comparison of the in vitro susceptibility of 41 strains of gonococci against penicillins G and X.

Three batches of penicillin X (sodium salt) became available, which were classified as XC1, XC2, and XL. Crystalline penicillin X was not then available. The percentage of penicillin X in the first 2 batches was approximately 80 percent with no fraction K present, and in the third batch, 65 percent X, with less than 2 percent K present. The penicillin G employed was the amorphous calcium salt supplied by the Food and Drug Administration for standardization tests, the material having a potency of 370 units per milligram and being entirely fraction G.

Two methods were used in testing in vitro susceptibility: (1) a serial dilution tube method; and (2) a penicillin plate method, by which 10 to 12 strains may be simultaneously tested per series of plates. In order to compare the two methods, 3 strains of gonococci were tested simultaneously in duplicate by both methods, but no difference in sensitivity of these strains occurred.

Forty-one strains of gonococci tested in vitro against penicillin G and three batches of penicillin X showed no difference in susceptibility. Eighty percent of these 41 strains were susceptible to 0.02 units per cubic centimeter. Thirty-two strains of gonococci were set up by the serial dilution tube method and 21 strains by the plate method in a test of the susceptibility of gonococci to a commercial sodium penicillin. Of these 53 strains, 79.2 percent had a susceptibility between 0.0156 and 0.0313 units per cubic centimeter. Of 50 strains of gonococci, 15 sulfonamide-fast and 35 nontreated gonococci showed no difference in in vitro susceptibility to commercial sodium penicillin.

Chancroid in women in Manila. Dolores G. LaO and Ray E. Trussell. Am. J. Syph., Gonor. & Ven. Dis., 31: 277–281, 1947.

The authors discuss the clinical aspects of chancroid among women examined in Manila from March 15 to July 31, 1945, under the intensive case-finding and mass-therapy program maintained under the direction of the Manila Department of Health and Welfare.

During this period, 8,086 women were examined at 3 treatment centers, but a detailed study of chancroid was possible in only 60 hospital admissions representing 49 women. The patients, who ranged in age from 15 to 34 years, were all prostitutes except 1, the majority having been in this occupation less than 5 months. Only 4 gave a history of Negro contacts.

The few early lesions observed began as apparent breaks in the epithelium, which enlarged and appeared to be secondarily infected. All fully developed ulcers were soft, 27 being painful in contrast to recurrent ulcers which were always painless. In 32 patients, longitudinal ulcers were found at the posterior fourchette. Large periurethral lesions were present in 7 of the 60 cases, while vaginal ulcers were demonstrable in 3 patients. No cervical ulcers were observed.

As to concurrent disease, 7 patients had gonorrhea diagnosed by smear; 4 had gonorrhea and serologic evidence of latent syphilis; 2 had secondary syphilis; 3 had serologic evidence of latent syphilis; and 5 had trichomoniasis.

The therapeutic agents employed included sulfadiazine and sulfathiazole by mouth, penicillin intramuscularly, local applications of sulfanilamide, sulfa zine, penicillin, lactic acid douches, ti ture of merthiolate, azochloramide, a gentian violet. The treatment schedu used are shown in table form.

In 16 patients, recurrences were no between the third and sixtieth days af release from the hospital. Trauma w considered to be important in these currences, since the lesions were alw at the site of the previously disea area and the layer of epithelium o newly healed ulcers was shown by bio to be very thin.

Although the results obtained do indicate a highly selective effect from use of any one of these therapeu agents, the data show that healing w most rapid and the disappearance gram-negative intracellular bacilli fr smears occurred earliest in patients ceiving sulfadiazine by mouth and lo sulfadiazine therapy.

Incidence of asymptomatic lymph granuloma venereum in a municipal h pital. A survey based on 1,512 cas Louis T. Wright, Gerald A. Spencer a Abraham Oppenheim. Am. J. Syp Gonor. & Ven. Dis., 31: 282–288, 1947.

In connection with a discussion studies indicating that asymptoma lymphogranuloma venereum affects high proportion of the population of t country, especially Negroes, the auth present data on the use of the Frei t in 1,512 patients who were routine h pital admissions to the Medical and Su gical Service of Harlem Hospital. A patients showing symptoms of lymph granuloma venereum infection were ca fully excluded.

In 1939, 1,203 patients were test with human Frei antigen. This gro included 130 children (white and Negro none of whom gave a positive reactio 156 white patients, among whom 19 ga positive reactions; and 917 Negro p tients, 231 of whom gave positive rea ings.

In 1945, 100 adults on the surgic wards of the Hospital were tested usi the chick-embryo antigen (lygranum these, 11.1 percent of the white pa- its and 23.2 percent of the Negro pa- its gave positive reactions.

n 1946, it was found that among 209 tinely admitted patients, 27.7 percent the white patients and 46.5 percent the Negroes gave positive reactions ng the yolk-sac or chick-embryo anti- . Complement-fixation tests were run allel with the Frei tests in this group. e percentage difference of positive re- s was found to be slight, however.

he authors conclude that the occur- ce of asymptomatic lymphogranuloma ereum is frequent, and recommend t the Frei test or the complement- tion test be used routinely on all hos- al patients with a history or evidence venereal disease of any type and on patients in whom the clinical diag- is is obscure.

H. Dermat. & Syph., Chicago

reatment of early acquired syphilis with 600,000 units of sodium penicillin. Dudley C. Smith, William H. Kaufman and June C. Shafer. 55: 644–649, May 1947.

elapsing syphiids of the genitalia. Persistence of lesions seven months after serologic reversion. Braulio Saenz. 55: 650–657, May 1947.

cute syphilitic bilateral total ophthalmoplegia. Albert C. Esposito. 55: 686–690, May 1947.

yphilis of the skin (primary, recurrent). William R. Hill, Jr. (New England Dermatological Society, Oct. 10, 1945.) Society Transactions. 55: 718, May 1947.

case for diagnosis (sporotrichosis? Secondary syphilis [treated]). George C. Andrews. (New York Dermatological Society, Oct. 23, 1945.) Society Transactions. 55: 727, May 1947.

ltimore Health News, Baltimore

alse positive syphilis blood tests need study. 24: 126–127, May 1947.

Vhy is a pre-marital blood test law unsound legislation? 24: 127–131, May 1947.

t. M. J., London

rsenical encephalopathy. An unusual case occurring in the treatment of congenital syphilis. G. Hipps and R. Goldberg. No. 4496: 296–297, Mar. 8, 1947.

lifornia's Health, San Francisco

ublic health—private physican venereal disease morbidity reporting program. Richard A. Koch and Jacob C. Geiger. 4: 176–177, May 31, 1947.

Christ Hosp. M. Bull., Cincinnati

*Penicillin by mouth. George X. Schwemlein and Arthur N. Nadler. 1: 33–38, July 1497.

Penicillin by mouth. George X. Schwemlein and Arthur N. Nadler. Christ Hosp. M. Bull., 1: 33–38, 1947.

The authors discuss the pitfalls inherent in the oral administration of penicillin, review several of the various methods of attempting to correct the difficulties, and report a new concept by Beyer involving competitive inhibition of the renal tubular excretion of this drug.

The three variables in the problem of the absorption of penicillin administered orally, according to the authors, are: (1) the destruction of penicillin by gastric acidity; (2) the rate of absorption from the upper bowel, since penicillin is quickly excreted by the kidneys and the absorption must be rapid in order that a measurable level may be obtained in the blood; and (3) destruction by penicillinase-producing organisms in the bowel.

Beyer reports it has been established that penicillin is excreted by way of the renal tubules in addition to glomerular filtration. When a normal relationship exists between glomerular filtration and renal plasma flow, the fraction of penicillin filtered at the glomeruli represents in man about 20 percent of the total amount excreted per unit time. Conversely, at customary blood levels, about 80 percent of the penicillin excreted is eliminated by way of the tubules. Thus the suppression of penicillin excretion by way of the tubules could be executed to effect a considerably higher plasma concentration for a longer period of time than normally would obtain following a given dose of penicillin.

A compound, carboxyphenylmethanesulfonanilide, was synthesized which when administered parenterally with penicillin caused higher and more prolonged serum levels. The basis of this effect is thought to be one of substrate competition between penicillin which is excreted by the tubules, and the synthesized compound, which is essentially refractory to excretion by the transport mechanism. Should further research with the use of these compounds be fruitful it is possible that they may be administered along with penicillin by the oral route, as little of the penicillin would escape the tubules initially. It would therefore be possible to administer small amounts of penicillin and obtain therapeutic levels.

The authors report that results of investigations carried out in their own laboratories (article in press) show that patients who are febrile will demonstrate higher and more prolonged serum penicillin levels, a fact true also of those receiving physically induced fever. This is probably due to the absence of free hydrochloric acid in the gastric juice during the febrile stage.

INDIAN J. VEN. DIS., BOMBAY

Treatment of gonorrhoea with penicillin. K. D. Lahiri. 12: 49–50, Oct.–Dec. 1946.
Penicillin dosage for syphilis. K. D. Lahiri. 12: 51, Oct.–Dec. 1946.
Penicillin. K. D. Lahiri. 13: 14, Jan.–Mar. 1947.
Penicillin in syphilis—Twelve-hourly injections. K. D. Lahiri. 13: 14, Jan.–Mar. 1947.
Venereal diseases in India. Editorial. 13: 15, Jan.–Mar. 1947.

J. M. A. ALABAMA, MONTGOMERY

Report of the board of censors as a State committee of public health. Part III, Transactions of the Association. D. G. Gill. 16: 440–454, June 1947.

J. OKLAHOMA M. A., OKLAHOMA CITY

Official proceedings of House of Delegates, Oklahoma State Medical Association, May 12, 1947. 40: 298–308, July 1947.

J. PEDIAT., ST. LOUIS

*Penicillin in the treatment of the syphilitic infant. A progress report. Elizabeth Kirk Rose, Paul György and Norman R. Ingraham, Jr. 29: 567–584, Nov. 1946.

Penicillin in the treatment of the syphilitic infant. A progress report. Elizabeth Kirk Rose, Paul György and Norman R. Ingraham, Jr. J. Pediat., 29: 567–584, 1946.

In this report, 36 congenitally syphilitic infants were treated with intramuscular penicillin in dosages ranging from 11,000 to 75,000 units per pound of body weight. Requirements for inclusion in this study were a high or rising serolog titer for syphilis, and either (1) a cli cally characteristic macular eruption us ally accompanied by darkfield positiv papular or bullous lesions, or (2) roe genographic evidence of inflammatory action in the metaphyses of the lo bones, with or without periostitis. T mean age of the infants at the beginni of treatment was 2 months. Sodium pe cillin was given intramuscularly every hours over a period of 7 days, then lat over a period of 15 days. The plan study included a monthly follow-up vis for complete physical examination by t pediatrician, the drawing of blood f serologic study, and repetition of t roentgenograms until they beca normal.

Clinical and serologic results are show in tables with follow-up results after t start of therapy of the total cases o served. Osseous changes as revealed serial roentgenograms (reproductions which illustrate this article) show characteristic involution. Twelve ca histories also accompany the report.

In 32 of the 36 infants, the initial cli cal response was uniformly good. C taneous and mucosal lesions heal rapidly and no syphilis spirochetes we found on darkfield examinations after hours. Appetite, nutrition, and gener activity improved.

The average time for blood reagin tit to become negative was 260 days in tho cases treated with less than 20,000 uni per pound, whereas it was 154 days wh the dosage was more than 20,000 units p pound of body weight. Statistical co parison between the response of the t groups to treatment showed no significa difference.

Conclusions of the authors from obse vations during this study are: (1) reco mended total dosage of sodium penicill is not less than 75,000 units per pound body weight, given every 3 hours in al quot doses for a course of not less tha 15 days; (2) there is no need for a initial low dosage; (3) there are cas manifesting symptoms referable to to emia where serious complications can

ided only by anticipation, early hos-
ilization, and prompt and vigilant
iatric supervision; (4) syphilis is a
erent and more serious infection in
congenitally infected infant than in
early acquired infection of the older
son, and as such it is a problem re-
ring the closest cooperation between
pediatrician and the syphilologist;
l (5) the optimum time-dosage rela-
ıship is still to be worked out.

Social Hyg., New York

946 in review. Social hygiene day objectives. Eleanor Shenehon. 33: 1–3, Jan. 1947.

year of transition from war to peace. Annual report of the American Social Hygiene Association for 1946. Walter Clarke. 33: 4–25, Jan. 1947.

Trop. Med., London

short statistical study of 60,000 dispensary patients treated in the interior of Brazil, 1944–1945. (North Central Minas Geraes, Goias and North-West Baia.) Eugene H. Payne and Aloysio Sanches. 50: 90–93, May 1947.

ncet, London

ymphogranuloma venereum. Letters to the editor. A. C. Fisher. 1: 270, Feb. 15, 1947.

onducing to the cure. Social psychiatry in the treatment of neurosyphilis by induced malaria. Maeve Whelen and M. H. Bree. 2: 477–480, Oct. 5, 1946.

rsenical chickenpox. T. G. Reah. 2: 507, Oct. 5, 1946.

Ann. District of Columbia, Washington

he properties and clinical applications of streptomycin therapy. John A. Kolmer. 16: 231–236, 285, May 1947.

ecent advances in obstetrics and gynecology. (Including v. d.) John Parks. 16: 304–313, 352–353, June 1947.

ommon ocular affections of childhood. Frank D. Costenbader. 16: 366–371, July 1947.

Vhen the generative system was taboo. Editorial. Ray H. Everett. 16: 386–387, July 1947.

J. Australia, Sydney

Iust syphilis still serve? Reg. S. Ellery. 1: 391–394, Mar. 29, 1947.

Officer, London

'en years of premarital blood test law. Henry P. Talbot. 77: 55–56, Feb. 1, 1947.

M. Rec., Kutztown

Venereal control council. News Items. 160: 173, Mar. 1947.

Recent trends in the treatment of Parkinsonism. (Including syphilitic form.) Lewis J. Doshay, Joseph Zigarelli and Paul Loewy. 160: 339–344, June 1947.

Therapy in pelvic inflammatory disease. (Including gonorrhea.) Albert F. Lee. 160: 355–357, June 1947.

Local reaction following the initial administration of penicillin in beeswax and oil: treatment with benadryl. John L. Switzer. 160: 357–358, June 1947.

Mississippi Doctor, Booneville

Neurosyphilis control program in Mississippi. G. S. Tobis. 24: 308–313, Apr. 1947.

Maternal and child health activities. Virginia Howard. 25: 89–90, July 1947.

New Orleans M. & S. J., New Orleans

Heart disease in Charity Hospital of Louisiana in New Orleans. A survey of 8,313 routine autopsies. Joe E. Holoubek, Alice Baker Holoubek and DeWitt T. Baker. 99: 431–437, Mar. 1947.

New York State J. Med., New York

Ulcers about the anorectum. (Including venereal ulcers.) Stuart T. Ross. 46: 1339–1345, June 15, 1946.

The recrudescence of syphilis in New York State. Isadore Rosen. 46: 1353–1354, June 15, 1946.

*The treatment of lymphogranuloma venereum and granuloma inguinale. Borris A. Kornblith. 46: 1358–1359, June 15, 1946.

Clinical use of penicillin in water-in-oil emulsion. Philip K. Kaufman. 47: 1111–1114, May 15, 1947.

The treatment of lymphogranuloma venereum and granuloma inguinale. Borris A. Kornblith. New York State J. Med., 46: 1358–1359, 1946.

In this article the author discusses methods of therapy in lymphogranuloma venereum and granuloma inguinale.

The sulfonamides and intravenous Frei antigen therapy have proved effective in the treatment of lymphogranuloma venereum. The various clinical manifestations of the disease require somewhat different management. The inguinal, femoral, and pelvic adenopathies generally respond to a single course of sulfathiazole or sulfadiazine. A total amount of 28 gm. is given in divided doses of 2 gm. daily over a period of 14 days. If fluctuating abscesses have formed, these should be aspirated repeatedly as necessary under sterile precautions until the abscess cavity does not fill up again. In any case resistant to sulfonamide therapy, Frei antigen given intravenously in 0.3-cc. doses every other day for about 15 injections may be used.

A detailed discussion of the treatment of rectal lesions is presented by the author. In general, a combination of the use of the sulfonamides by mouth and Frei antigen intravenously has produced the best effect in the cases in which lesions are acute or subacute. Rectal dilatation alone is found of definite benefit in those cases in which active disease has completely subsided. It is definitely contraindicated in tubular strictures, acute proctitis, or pelvic inflammation. Colostomy is only rarely necessary as an emergency procedure. Rectal resection has thus far proved to be a procedure associated with a high mortality and is of doubtful value. Incision and excision of fistulous tracts and repair of recto-vaginal fistulas have proved unsatisfactory as long as any disease process remains active in the rectum itself. Palliative procedures, such as rest in bed, low residue, high vitamin diet, retention enemas of olive oil or cotton seed oil, rectal irrigation with tannic acid 2 percent, have all proved of benefit.

The author also discusses cases with persistent genital lesions. This group comprises chronic periurethral lesions, esthiomene, and various lymphedematous ulcerative lesions of the male and female genitalia. He states that the pendulous masses may be removed only after the ulcerative lesions are healed and that no surgery should be undertaken until all evidence of active disease has disappeared.

NORTH CAROLINA M. J., WINSTON-SALEM

The use of BAL in the treatment of heavy-metal poisoning. Charles R. Welfare. 8 : 219–223, Apr. 1947.

NOVA SCOTIA M. BULL., HALIFAX

Cases of venereal disease in Canada reported by provincial health departments to the Dominion Bureau of Statistics, 1944, 1945 and 1946. 26 : 102, Apr. 1947.

OHIO STATE M. J., COLUMBUS

The penicillin treatment of gonorrhe the female: A study of the time ratio. Allan C. Barnes and Robe Daly. 43 : 369–371, Apr. 1947.

Non-syphilitic lesions of the penis. I L. Schonberg. 45 : 498–500, May

Penicillin—indications and methods o ministration. Robert F. Parker. 501–503, May 1947.

OREGON HEALTH BULL., PORTLAND

Agreement reached on blood reports. (marital and prenatal.) 25 : 1, Apr. 1947.

PENNSYLVANIA'S HEALTH, HARRISBURG

Pittsburgh plans expansion of venereal ease control. 8 : 4–5, 12–13, Jan.– 1947.

PENNSYLVANIA M. J., HARRISBURG

Recent advances in syphilologic diag and treatment. The nonspecific pos serologic test and the use of penici John H. Stokes. 50 : 718–725, Apr. 1

PROC. SOC. EXPER. BIOL. & MED., UTIC

The inactivation of streptomycin and practical applications. Walton B. Ge Samuel R. Green and Selman A. W man. 61 : 187–192, Feb. 1946.

Bactericidal action of streptomycin. D thy Hamre, Geoffrey Rake and Ric Donovick. 62 : 25–31, May 1946.

Isolation of virus of lymphogranuloma v reum from blood and spinal fluid a human being. Paul B. Beeson, M garet J. Wall and Albert Heyman. 306–307, June 1946.

Low toxicity of sulfonamide mixtures. Combinations of sulfathiazole, sulfa zine, and sulfamerazine. David L 64 : 393–401, Apr. 1947.

*On the use of urea- and phenol-treated test antigens for diagnosis of lym granuloma venereum. Clara Nigg, A. Grace and Maurice R. Hilleman. 416–418, Apr. 1947.

Trypanocidal and spirochetocidal c pounds derived from BAL and other ganic arsenicals. Ernest A. H. Fr heim and Henry J. Vogel. 64 : 418–4 Apr. 1947.

Some pharmacological characteristics bacitracin. John V. Scudi and Willi Antopol. 64 : 503–506, Apr. 1947.

On the use of urea- and phen treated skin test antigens for diagno of lymphogranuloma venereum. Cl Nigg, A. W. Grace and Maurice R. Hi man. Proc. Soc. Exper. Biol. & Med., (416–418, 1947.

e authors refer to an earlier report
2) in which it was shown that urea
ncentrations of 1 to 2 percent inacti-
l the virus of lymphogranuloma ve-
um in 10-percent yolk-sac suspensions
ared from infected chick embryos.
-inactivated skin test antigens con-
ng 0.25 percent phenol and 1/20,000
hiolate as preservatives have been
ared in these laboratories for clinical
ng for over 4 years, according to the
ors.

study is described in which the en-
ement with phenol of the skin test
ity was investigated. The method is
ribed in detail and a table is pre-
ed showing comparisons of urea- and
ol-treated skin test antigens.

is concluded that saline suspensions
ared from yolk sacs heavily infected
the virus of lymphogranuloma ve-
um and inactivated with 2 percent
or 0.5 percent phenol constituted
sfactory diagnostic skin test antigens
igh dilutions. It was further found
yolk-sac suspensions treated with
ol so as to enhance their complement-
g activity sixteenfold were not ap-
iably more active as skin test anti-
than urea-treated suspensions.

HEALTH REP., WASHINGTON

ogress toward a world health organization. 62 : 225–248, Feb. 14, 1947.

NEWS LETT., WASHINGTON

citracin fights germs. 51 : 119, Feb. 22, 1947.

nicillin prevents syphilis. Mold chemical acts as a prophylactic agent against germs before the disease develops when injected in rabbits. More research is necessary before success is sure. 51 : 259, Apr. 26, 1947.

NCE, BALTIMORE

imination of the false positive reaction with human sera in complement fixation tests. Gordon C. Brown. 106 : 43, July 11, 1947.

AL HYG. NEWS & VIEWS, WASHINGTON

will take time and work. 15 : 1, June 1, 1947.

ow much for a baby's life? 15 : 2, June 1, 1947.

aryland maps State-wide VD fight. 15 : 3, June 1, 1947.

SOUTH AFRICAN M. J., CAPE TOWN

*Sudden death from cardiac and aortic disease. J. Greenstein. 21 : 307–320, May 10, 1947.

Sudden death from cardiac and aortic disease. J. Greenstein. South African M. J., 21: 307–320, 1947.

The author reports a high prevalence of syphilis among the young non-European population (all Bantu races, colored, and Indians) in South Africa.

A study from 4,047 consecutive autopsies at the Johannesburg medicolegal laboratories for a 2-year period (1941–42) showed 395 cases above 10 years of age of sudden death due to cardiac or aortic disease, with 91 (23 percent) due to syphilitic aortitis. Stenosis of the ostia (with aortic insufficiency in a number of cases) was found in 67 instances (73.6 percent). In 23 instances (25.2 percent), ruptured aneurysms were found in the first part of the aorta. The sex distribution was 63 males and 25 females (3 unstated), and the ages ranged between 19 and 65 years, with the highest incidence in the third, fourth, and fifth decades. The race distribution was 12 non-Europeans to 1 European. The author notes the striking reversal in the race incidence between atherosclerosis and coronary thrombosis on the one hand and syphilitic aortitis on the other hand.

An investigation of the incidence of venereal disease among non-European adult males in the native general pass office, Johannesburg, showed an incidence of 1.9 percent, mostly in the primary stage; in a country district among the native population, including males, females, and children, the incidence was found to be 30 percent, 40.3 percent, and 42.5 percent, respectively. It is reported that no serologic tests were made in these two studies. In an investigation at a non-European reformatory where boys between the ages of 12 and 18 years were confined for rehabilitation, 24.6 percent were found to have congenital syphilis. At a non-European hospital, 25.7 percent of cardiac patients treated in two wards were found on serologic examination to have syphilis. The medicolegal aspects of coronary occlusion or spasm when the coronary ostia are in a sclerosed state are stressed by the author.

Photographic reproductions of heart specimens illustrate the article; included are illustrations of a heart condition in syphilitic aortitis and an aneurysm of the ascending part of the aorta with a longitudinal rupture.

South. M. J., Birmingham

Diagnoses commonly missed in general practice. (Including syphilis.) M. Pinson Neal. 40: 414–420, May 1947.

The practical handling of bacteriology by the clinical pathologist. (Including gonorrhea.) Emma S. Moss. 40: 427–432, May 1947.

Streptomycin resistance. Editorial. 40: 449–450, May 1947.

Practical handling of serology by the clinical pathologist. E. L. Webb. 40: 530–534, June 1947.

Stethoscope, Detroit

The venereal disease problem. 2: 1–2, July 1947.

Surg., Gynec. & Obst., Chicago

Discovery pains. (V. D. history.) The Surgeon's Library. The Book Shelf. Esther H. Vincent. 85: 117–120, July 1947.

Texas State J. Med., Fort Worth

Pathologic basis for chronic cardiac valvular lesions. C. T. Ashworth. 43: 29–33, May 1947.

Trained Nurse & Hosp. Rev., East Stroudsburg

Industrial nursing. (Venereal disease.) Questions and answers. 117: 33, July 1946.

U. S. Nav. M. Bull., Washington

Long-term observation of plasm vivax malaria in the returned s man. Anthony A. Bianco, Geor Saunders, Arnold S. Levine and Cohn. 47: 352–367, Mar.–Apr. 550–567, May–June 1947; 753–765, Aug. 1947.

Single injection therapy for gono Turner Camp. 47: 451–452, May 1947.

The determination and treatment of cillin-resistant gonorrheal uret Werner W. Duemling and Samu Horton, Jr. 47: 605–616, July 1947.

Urol. & Cutan. Rev., West Palm B

Infections of the urinary tract an complications arising therefrom. Bleyer. 51: 17–22, Jan. 1947.

Present status of penicillin therapy in syphilis. 51: 63, Jan. 1947.

Ven. Dis. Briefs, Columbus

Syphilis morbidity reporting 1940– 1: 2, Mar. 1947.

Victory in Sight, D. C.

Eye health and the venereal diseases. R. Kiesselbach. 4–5, June 1947.

Virginia M. Monthly, Richmond

New device to inject penicillin for 74: 226, May 1947.

West Virginia M. J., Charleston

State Health Department takes contr Rapid Treatment Center. 43: 176, 1947.

Committee on syphilis. Annual re 43: 222–223, June 1947.

Wien. klin. Wchnschr., Vienna

Damage to bone marrow caused by phenamine. V. Lachnit. 58: 666, N 1946. (Abstracted in J. A. M. A., cago, 133: 967, Mar. 29, 1947.)

CURRENT NOTES AND REPORTS

Postgraduate Course in the Management and Control of the Venereal Diseases

ͤ ninth postgraduate course in the al management and public health ol of the venereal diseases will be icted at the United States Public h Service Medical Center, Hot gs, Ark., during the period October November 15, 1947, inclusive.

is course of training will be avail- to health officers interested in the al aspects of venereal disease control, as well as to physicians in private practice who have been cooperating with State and local health departments. Lectures and demonstrations will be given by specialists in the various fields of the management and control of the venereal diseases.

Further information may be obtained through the Medical Officer in Charge of the Medical Center in Hot Springs.

The American Venereal Disease Association

e American Venereal Disease Asso- on, successor to the American Neis- n Medical Society, will hold its next al session in Chicago, Ill., in conjunc- with the annual session of the Ameri- Medical Association, with a business ing on the evening of June 20 and entific program on June 21, 1948.

esent membership qualifications are llows:

ll membership.—(1) Residents of the ed States, its Territories, Canada, co, or islands adjacent thereto. (2) uates of a medical school recognized he American Medical Association. At least 5 years' experience in some e of venereal disease control. Dues $5 per annum.

Corresponding membership.—Five years' or more experience in bacteriological, pathological, or biochemical research. No annual dues. (It is probable that the name for this type of membership will be changed in the revised constitution, and the membership qualifications broadened.)

Junior membership.—Qualifications (1) and (2) for full membership without the requirement of 5 years' experience in the field. Dues are $3 per annum.

The Association welcomes applications for membership from properly qualified individuals. They should be addressed to: Dr. Wm. L. Fleming, Secretary, 750 Harrison Avenue, Boston 18, Mass.

Cooperative Project in Puerto Rico

ıe Health Department of Puerto Rico ucted 215 venereal disease clinic ses- s per week during the fiscal year 1947. nty-one were conducted by health ers, 44 by full-time venereal disease cians, and 100 by part-time venereal ase physicians. A total of 118 field ts are employed to do follow-up work ıese clinics. Four institutes for in- ice training of these field agents h lasted 4 days each were conducted during the months of April, May, and June 1947. The District Director and Venereal Disease Consultant of Public Health Service District No. 6 participated in the program of these 4 institutes.

A program for in-service training of venereal disease physicians is being formulated for the fiscal year 1948. The first institute was held in Ponce during the month of July 1947.

Clinical Film Service

A venereal disease clinical picture service is being developed by the Venereal Disease Division of the United States Public Health Service. This project includes the acquisition and distribution of sets of several hundred clinical photographs and drawings of the visible evidence of venereal disease, and illustrations of other picturable subjects useful to professional venereal disease control personnel.

The Venereal Disease Division has recently planned a cooperative project with the Communicable Disease Center at Atlanta, Ga., and with the Medical Center at Hot Springs, Ark., for production of audiovisual technical aids for professional venereal disease control personnel as well as for medical students, private physicians, and public health workers. These technical aids will include pictures of diagnostic, laboratory, and control methods in the form of motion pict slide transparencies, film strips, scien exhibit materials, and other special vi aids pertinent to venereal disease search.

Request for Films

In order to make possible the com tion of a motion picture reference cat the Venereal Disease Division is requ ing the loan of 16-mm. films on scien clinical, diagnostic, laboratory, or o technical phases of the venereal disea Film subjects may be privately or c mercially made, sound or silent, in c or black and white, any length or stag production. Such films will be retur promptly after cataloging and rev Please communicate with J. R. Heller, Medical Director, Chief, Venereal Dis Division, United States Public He Service, Washington 25, D. C. Attenti Judson Hardy.

Army Venereal Disease Rate Hits New Low Since VJ-Day

The Army's venereal disease rate at home and abroad has reached a postwar low.

Stringent regulations outlined last January by Secretary of War Robert P. Patterson were considered by the Army to have brought about a sharp drop in venereal disease. The Army-wide venereal disease rate has fallen 23 percent. The latest figures available, for May 1947, show a 30-percent decrease from the postwar high in the summer of 1946.

The present venereal disease incidence rate in Europe is 23 percent below the July 1946 high; in the Pacific, 50 percent below the high rate in October 1946; and in the United States, 47 percent below the April 1946 peak.

In his letter, Mr. Patterson ordered cooperation with civilian authorities in reducing "the reservoir of infection in the adjacent community," to be accompanied by control over sale of liquor to troops and by tightening of discipline within the various commands. He also outlined programs for chaplains, spe service officers, and provost marshals follow in curbing venereal disease. S geons were ordered to emphasize moral factors and the role of contine and individual responsibility in th programs of sex hygiene and to rec mend further control measures wh necessary.

Individuals who became infected w to be restricted to their posts for a per up to 90 days, when necessary, as a pub health procedure, and commanders w authorized to restrict off-post passes the case of "irresponsible individu who repeatedly expose themselves to risk of venereal disease."

Exercising over-all supervision o Army venereal disease control is War Department Venereal Disease C trol Council, made up of ranking memb of the War Department General a Special staffs. The Council meets peri ically to survey venereal disease con tions and to develop further measu for control.

Syphilis Mortality Rate per 100,000 Estimated Population—United States and Each State[1] 1933–1945

	New England						Middle Atlantic			East North Central					
United States	Maine	New Hampshire	Vermont	Massachusetts	Rhode Island	Connecticut	New York	New Jersey	Pennsylvania	Ohio	Indiana	Illinois	Michigan	Wisconsin	Year
TOTAL															
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1933
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1934
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1937
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1938
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1939
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1940
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1941
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1942
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1945
WHITE															
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1939
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NONWHITE															
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1934
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1935
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1936
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1940

West North Central							South Atlantic									
Minnesota	Iowa	Missouri	North Dakota	South Dakota	Nebraska	Kansas	Delaware	Maryland	District of Columbia	Virginia	West Virginia	North Carolina	South Carolina	Georgia	Florida	Year
TOTAL																
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1933
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1935
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1936
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1937
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1940
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1942
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1943
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East South Central				West South Central				Mountain								Pacific			
Kentucky	Tennessee	Alabama	Mississippi	Arkansas	Louisiana	Oklahoma	Texas	Montana	Idaho	Wyoming	Colorado	New Mexico	Arizona	Utah	Nevada	Washington	Oregon	California	Year
TOTAL																			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1933
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1936
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1937
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1939
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NONWHITE																			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1933
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1939
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1940

[1] Years 1933–45, place of [illegible] of residence. [Deaths by residence not available prior to 1940. Occurrence data were used for 1940 to [illegible] in the last year [illegible] white-nonwhite sections.]

[2] Years 1940–45, rates exclude deaths among armed forces overseas and are based on population in the State. State populations not estimated by color after 1940.

[3] Rate not computed since the population was less than 10,000.

Source: Rates for total: Vital Statistics—Special Reports—State Summaries, Vol. 23, 1945; Vol. 21, 1946; and Vol. 26, 1947. Rates by color: Years 1933 and 1940—Vital Statistics of the United States [illegible] Years 1934–39 computed from Mortality Statistics of the United States and Vital Statistics—Special Reports.
The Journal of Venereal Disease Information, October 1947.

NOTE: The downward trend of the national syphilis death rate since 1937 is based upon decreases in the rates for almost all of the individual areas. Unfortunately, State population estimates by color have not been prepared since 1940. Syphilis mortality trends after this date can be established just for the total population. The 1940 color-specific rates reveal that the South, which is considered as having the highest syphilis prevalence rate (based on 1940–41 selective service testing) tends toward low rates of reported syphilis deaths. Studies are being conducted to determine what factors may be responsible for this inverse relationship.

United States Public Health Service, Venereal Disease Division, Office of Statistics, 8/12/47 (H AK/HH).

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FEDERAL SECURITY AGENCY
United States Public Health Service

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FEDERAL SECURITY AGENCY

UNITED STATES PUBLIC HEALTH SERVICE

THOMAS PARRAN, *Surgeon General*

Editor: J. R. HELLER, Jr., *Medical Director*
Chief, Venereal Disease Division

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Penicillin Therapy in Early Syphilis: III[1]

C. Arnold, Senior Surgeon; J. F. Mahoney, Medical Director; John C. Cutler,
urgeon; and Sacha Levitan, Surgeon (R); United States Public Health Service

he results obtained in the treatment
early syphilis with penicillin have
n presented by the writers in previous
orts (*1*, *2*). In the previous studies,
ls of 1,200,000 and 2,400,000 units, re-
ctively, were administered in treat-
nt schedules which utilized a 3-hour
rval between injections. The results
e not considered to be the best obtain-
e with penicillin therapy. Subsequent
he publication of these reports, studies
concentration of penicillin in blood
um (*3*) indicated that a 2-hour inter-
between injections was more effica-
s than a 3-hour interval in maintain-
a uniform blood level.

he present report covers an observa-
n period of 6 to 30 months for a large
ies of patients treated for early syph-
with a penicillin schedule which em-
yed a 2-hour interval between injec-
s. The treatment schedule consisted
0,000 units of sodium penicillin administered by intramuscular injections at 2-hour intervals for a total of 85 injections (3,400,000 units). Commercial penicillin products of various manufacturers were used. Reactions to this therapy (except for the usual therapeutic shock, i. e., Herxheimer) were not frequent or severe, and in no instance was it found necessary to discontinue treatment before the completion of the prescribed course.

A total of 728 unselected patients, predominantly young white males, in whom an unequivocal diagnosis of early syphilis was established, was treated. Approximately 67 percent displayed only the primary lesion of syphilis; the remainder presented skin, mucous membrane, or glandular manifestations of the secondary phase of the disease. All clinical diagnoses were confirmed by laboratory findings. So far as is known, no other antisyphilitic therapy was received by any of the patients. A diligent effort was made to obtain posttreatment observations at weekly or biweekly intervals during the first 6 months.

Table 1 displays the social data and

BLE 1.—*Clinical and social data on 728 patients treated with 40,000 units penicillin given every 2 hours for 85 injections*

Age group (years)	Primary (485)				Secondary (243)			
	Male		Female		Male		Female	
	White	Colored	White	Colored	White	Colored	White	Colored
less	79	16	1	1	28	9	1	2
5	137	31	4	1	42	23	6	1
0	74	16	2		32	11	3	1
5	40	6	1		27	12	1	
0	21	9	1		15	4		
5	23	3			12	1		
0	13	1			7			
5	3	1			2	1		
0	1				1			
5						1		
Total	391	83	9	2	166	62	11	4

From the Venereal Disease Research Lab-
tory, U. S. Marine Hospital, Staten Island
. Y. Director: J. F. Mahoney, Medical Di-
tor, U. S. Public Health Service.

clinical status at the time of treatment of the patient group.

After the disappearance of clinical evidence of the disease, acceptance of continued satisfactory response to therapy was based upon serologic reactions. The serologic routine consisted of seven distinctive tests, namely, Kahn, Kline (diagnostic and exclusion), Hinton, Eagle, and Mazzini flocculation tests, and the Kolmer complement-fixation method. In addition, end-point quantitative serologic determinations were carried out with two of the flocculation methods, Kahn and Mazzini.

In patients satisfactorily responding to penicillin therapy, the anticipated serologic curve consists of a gradual and progressive decline in the titer of the quantitative reactions, followed by reversal to negative in the findings of all test procedures. The term "negative," as employed in the present report, may be construed as indicating negative findings in all tests. An exception has been made for patients having a plus-minus and/or a 1+ Mazzini or Kline exclusion reaction, which are also considered negative.

The term "improved" is employed to designate patients in whom the trend of the serologic curve has been consistently downward but has not reached the negative phase at the time of report. In instances in which seronegativity was found to exist after a long lapse from posttreatment observation, no effort was made to estimate the probable time at which the negative state was attained. This accounts for some patients being carried in the "unchanged" or "improved" category for a year or longer prior to being classed as seronegative.

The term "serologic relapse" designates a sustained increase in titer after a decline following treatment.

The clinical and serologic status of the patients at the completion of the monthly periods of posttreatment observation are displayed in table 2. The table also contains the broad classification accorded the patients in whom re-treatment was carried out, and a compilation of the cumulative failure, or re-treatment, rate. The latter device represents a statistical tempt to give weight to the probable fa ures which may have taken place in th portion of the treatment group which w lost from observation; it is computed the basis of the number of observatio in each time period in relation to the nu ber of failures or re-treatments for a reason, up to and including that ti period.

In column C of table 2 are display the percentages of total patients follow in each of the posttreatment observati periods. The initial loss of 30 percent the patient material through failure obtain any follow-up information is grettable and may be due, in part, to t uncertainties of residence inherent in t seafaring occupations of the majori of the group.

Columns E, F, G, and H portray t serologic status of the patients at t various posttreatment periods. In e umns I and J are listed the patients w were re-treated. Because of the lack o satisfactory means of differentiati clinical relapse and reinfection, patie who displayed any clinical evidence recurrent early syphilis are grouped gether.

Columns K and N are devoted to t observed and the cumulative re-treatme rates.

Not displayed in the above tables are t results of spinal fluid examinations. Pr treatment spinal fluid examinations we carried out for 492 patients. The labor tory procedures employed consisted of t Kolmer complement-fixation test, t Eagle flocculation test, cell count, tot protein determination, and the colloid gold reaction. Of the total examinatio negative findings were recorded in flu from 458 patients. In 34 instances the were some deviations, usually slight, fro an arbitrarily selected normal in one more of the test methods employed. No of the patients displayed clinical eviden of central nervous system involvement.

Posttreatment spinal fluid examin tions, 6 months or more following t completion of therapy, were carried o for 230 patients, of whom 162 were in

BLE 2.—*Observations on 728 patients with early syphilis treated with 40,000 units of penicillin given every 2 hours for 85 injections (total dosage—3,400,000 units)*

uration bserva- n (days)	Number treated	Percent observed	Number observed	Not re-treated: Unchanged or improved serologic status [1]		Not re-treated: Negative serologic status [1]		Re-treated: Clinical relapse or reinfection	Re-treated: Serologic relapse or failure	Percent [1] re-treated this period	Percent [1] not re-treated this period	Percent not re-treated throughout period of observation	Cumulative percent [2] re-treated throughout period of observation
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)
				Number	*Percent*	*Number*	*Percent*						
)	728	71.3	519	492	94.80	27	5.20	------	------	0.00	100.00	100.00	0.00
60	728	70.7	515	442	85.83	73	14.17	------	------	.00	100.00	100.00	.00
91	728	66.6	485	372	76.70	111	22.89	1	1	.41	99.59	99.59	.41
121	728	63.7	464	304	65.52	157	33.84	3	------	.65	99.35	98.94	1.06
-151	728	60.0	437	261	59.73	174	39.82	2	------	.46	99.54	98.48	1.52
-182	728	55.8	406	223	54.93	181	44.58	2	------	.49	99.51	98.00	2.00
-212	728	51.2	373	181	48.53	192	51.47	------	------	.00	100.00	98.00	2.00
-242	721	46.3	334	149	44.61	184	55.09	1	------	.30	99.70	97.71	2.29
-273	696	42.7	297	129	43.43	168	56.57	------	------	.00	100.00	97.71	2.29
-303	648	40.9	265	108	40.75	156	58.87	1	------	.38	99.62	97.34	2.66
-333	584	39.6	231	89	38.53	141	61.04	1	------	.43	99.57	96.92	3.08
-365	530	39.2	208	68	32.69	139	66.83	------	1	.48	99.52	96.45	3.55
-395	461	38.4	177	56	31.64	121	68.36	------	------	.00	100.00	96.45	3.55
-425	419	38.4	161	42	26.09	117	72.67	2	------	1.24	98.76	95.25	4.75
-456	395	34.2	135	28	20.74	106	78.52	------	1	.74	99.26	94.55	5.45
-486	331	31.7	105	23	21.90	82	78.10	------	------	.00	100.00	94.55	5.45
-516	264	36.0	95	20	21.05	75	78.95	------	------	.00	100.00	94.55	5.45
-547	220	35.9	79	15	18.99	63	79.75	1	------	1.27	98.73	93.35	6.65
-577	178	37.6	67	13	19.40	54	80.60	------	------	.00	160.00	93.35	6.65
-607	148	38.5	57	11	19.30	46	80.70	------	------	.00	100.00	93.35	6.65
-638	126	31.7	40	4	10.00	36	90.00	------	------	.00	100.00	93.35	6.65
-668	112	27.7	31	1	3.23	30	96.77	------	------	.00	100.00	93.35	6.65
-698	101	25.7	26	--------	--------	26	100.00	------	------	.00	100.00	93.35	6.65
-730	85	24.7	21	--------	--------	21	100.00	------	------	.00	100.00	93.35	6.65
-912	69	20.3	14	--------	--------	14	100.00	------	------	.00	100.00	93.35	6.65

[1] Percentages based on number of patients observed in each period.

[2] Calculated by a statistical device to give weight to the probable failures which may have taken place among se patients lost from observation.

duals who had had pretreatment spinal uid studies. Posttreatment spinal fluid aminations were negative except in 3 stances. These fluids were from pants whose pretreatment examination d been positive, but neither the preeatment nor posttreatment changes ere associated with evidence of brainem involvement.

Discussion

Among the 728 patients who comprised e clinical material, 17 of those remaing under observation were re-treated for inical or serologic reasons; 14 of the 17 splayed clinical evidence of early syphilis at the time of re-treatment. Almost unimpeachable evidence of reinfection was present in some instances, but because of the lack of accurate diagnostic criteria, a differentiation between clinical relapse (indicating failure of the therapy) and reinfection (indicating success of the initial treatment) is not attempted.

The data displayed in columns D through H of table 2 show the ratios which exist in each observation period between the total number of patients observed and the number which attained seronegativity. These ratios indicate a consistent trend toward the negative phase as the duration of the posttreatment period lengthens.

The tendency for the majority of unsatisfactory results to become apparent during the initial 6 months of the posttreatment period is reflected in columns I and J of table 2. The same characteristic has been observed in previous penicillin studies.

Frequency and regularity of posttreatment quantitative serologic examinations are essential to the accurate portrayal of the serologic curve. Irregularity in the spacing of the observations and long lapses from observation tend to distort the serologic picture and render difficult the proper interpretation of residual positivity. In the present report no attempt has been made to estimate the probable date of seroreversal in patients found to be seronegative after a long lapse from observation.

Although more uniform penicillin blood levels are attainable through the injection of the antibiotic at 2-hour intervals, the inference that the results obtained in the present series may be attributed to the employment of a 2-hour period is not justified. No comparable studies are available in which a total of 3,400,000 units or more of the antibiotic has been employed in the treatment of early syphilis, and in which the interval between injections has been 3 hours or more.

Although not a part of the present report, the response of the re-treated patients to the same or increased amounts of penicillin is interesting. In each instance in which the re-treated patients remained under observation for adequate periods of time, the clinical and serologic behavior was similar to that observed in patients responding to initial therapy in a satisfactory manner.

Whether the minimal changes which were recorded in both pretreatment and posttreatment spinal fluid examinations are indicative of changes in the fluid itself, or are expressions of the inconsistencies and vagaries which are inherent in the test methods themselves, cannot be stated. Because all the patients with abnormal pretreatment spinal fluid findings failed to develop symptoms referable to central nervous system involvement, and because the findings in 9 of fluids from these patients were co pletely normal on posttreatment testi it does not appear warranted to base diagnosis of asymptomatic neurosyphi upon the type of changes which were served in the present series.

The cumulative failure or re-treatme rate is computed on the basis of the nu ber of observations made in each ti period in relation to the number of fa ures or re-treatments for any cause. Tl type of analysis becomes hypercritic when failures occur in a time period which there have been a limited numb of patients observed.

Conclusions

1. A therapy consisting of 40,000 uni of penicillin administered at 2-hour inte vals for a total of 85 injections was e ployed in the treatment of 728 patien with the confirmed diagnosis of ear syphilis.

2. Clinical and serologic consideratio led to the re-treatment of 17 individua up to the present, among those remaini under observation.

3. Of the patients re-treated, 14 di played clinical evidence of early syphili No effort is made to differentiate betwee clinical relapse and reinfection. In 3 i stances re-treatment was dictated by ser logic relapse or serologic failure.

4. An increasing proportion of patien in each treatment period attained ser negativity as the duration of the pos treatment period lengthened.

5. No confirmed instances of centr nervous system involvement were note

References

1. Mahoney, J. F.; Arnold, R. C.; Harris, A Penicillin treatment of early syphili A preliminary report. Ven. Dis. I form., 24 : 355–357, 1943.

2. Mahoney, J. F.; Arnold, R. C.; Sterne B. L.; Harris, A.; Zwally, M. R Penicillin treatment of early syphili II. J. A. M. A., 126 : 63–67, 1944.

3. Unpublished reports. Venereal Disease R search Laboratory.

Venereal Disease Control During the Postwar Period[1]

J. R. Heller, Jr., Medical Director; Chief, Venereal Disease Division, United States Public Health Service

The formal entrance of the American isserian Medical Society into the annt fight of mankind against syphilis is historic event in the course of that ht. The potentialities of its influence the future perhaps can be predicted m the success of its past efforts to mulate medical and public health acity in the control of gonorrhea. Bend any question the work of the Amern Neisserian Medical Society and the piration and leadership of its memrs, as exemplified in the truly noble eer of the late Dr. Percy S. Pelouze, ve been a powerful influence in gonorea control.

In enlarging the scope of its activity include medical and public health pects of all venereal diseases, the Soty is not entering strange and totally familiar territory when it undertakes deal with syphilis control. Neverthes, it is useful to summarize progress at has been made up to this point, to termine where we stand today, and to nsider what remains to be done.

Exactly 10 years ago, on June 8, 1937, re in Atlantic City, before members of American Medical Association, Dr. omas Parran discussed the "Control of philis."[2]

Progress to Date

Ten years ago the number of deaths e to all forms of syphilis was in the neighborhood of 16 per 100,000 population. In 1946, the estimated syphilis death rate was 9.3 per 100,000 population. Ten years ago the number of infant deaths due to syphilis was 69 per 100,000 live births. It was little more than one-third of that figure, 25 per 100,000, in 1945. In 1937, patients were admitted to mental hospitals as a result of syphilis at the rate of 7.1 per 100,000 population. In 1944, mental hospital admissions due to syphilis were at the rate of 5.8 per 100,000 population. Of the patients who started treatment 10 years ago, only 30 percent completed minimum protective treatment. Today, with rapid treatment methods, practically all of the patients admitted to in-patient facilities complete the full prescribed course of treatment.

Ten years ago Dr. Parran formulated nine basic principles of public health control of syphilis:

1. *Trained public health staff.*—The first of these called for "a trained public health staff to deal with syphilis in each State and city." In 1937, there was but a handful of persons in the entire United States with any training in the public health control of syphilis. Today, all States and many cities have staffs of experts trained to do the various kinds of specialized work required to cope with venereal disease conditions prevailing in the respective States and local communities. These staffs include syphilologists, public health nurses, epidemiologists, statisticians, contact interviewers and investigators, educators, and record analysts.

2. *Case finding and case holding.*—The second fundamental requirement for the control of syphilis was case finding, reporting of cases, and case holding. Today, with rapid in-patient therapy which is completed within 2 weeks or less, case holding is relatively minor compared with

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[1] Presented at the Ninth Annual Session of American Neisserian Medical Society, Attic City, N. J., June 8–9, 1947. At this sion, the name of the society was changed mally to American Venereal Disease Assotion.

[2] Read in the General Scientific Meetings at Eighty-eighth Annual Session of the erican Medical Association, Atlantic City, J., June 8, 1937, and published in VENEREAL SEASE INFORMATION, vol. 18, No. 7, July 37. Pp. 223–230.

the major problem it constituted when 70 weeks were required for completion of the arsenic-bismuth schedule. Case finding meanwhile has become the major problem in syphilis control. Although it is impossible to measure progress of all types of case-finding activity, statistical data indicate that the effectiveness of contact investigation for many areas throughout the Nation has approximately doubled during recent years.

3. *Premarital and prenatal serodiagnostic tests.*—In 1937, not a single State in the Union required prenatal blood tests. Connecticut's premarital law was only 2 years old, and 5 more States were enacting laws requiring premarital examinations. Today, 36 States have premarital examination laws, and 35 States and 1 Territory require prenatal tests for syphilis. At present premarital and prenatal blood tests are performed at a rate of about 2,500,000 a year, resulting in the discovery of thousands of cases of syphilis per year. The 60-percent reduction in infant deaths due to congenital syphilis during the decade may be attributed in large part to the fulfillment of the basic requirement of prenatal and premarital serodiagnostic tests.

4. *Diagnostic services.*—Ten years ago laboratory facilities were scarce and produced highly variable results, and only about 2,500,000 blood serologic tests for syphilis were performed annually. Today good public laboratories are functioning in every State health department and in many large city health departments, and about 20,000,000 blood serologic tests are performed annually.

5. *Treatment facilities.*—In 1937, public facilities in the United States for the treatment of syphilis consisted of 965 clinics which admitted only 100,000 syphilis patients annually. In 1947, there are about 3,000 clinics and 63 rapid treatment facilities whose syphilis admissions total 310,000 per year. Meanwhile, the function of the clinic has evolved. It has become that of diagnosing syphilis, referring early cases to the rapid treatment centers throughout the country, and providing treatment for those cases of syphilis for which intensive, in-patient care unnecessary or inadvisable.

The development of rapid treatment f cilities, which could not be forecast 1937, has been one of the most striki phenomena in contemporary syphilis co trol. Originally established in 1943 as wartime emergency measure to provi intensive therapy for large numbers patients with infectious syphilis and wi gonorrhea, the rapid treatment cente were in a strategic position for adapt tion to broad-scale introduction of pe cillin therapy. The Nation's rapid tre ment facilities have expanded to inclu beds in general hospitals and are n treating approximately 150,000 cases syphilis a year—representing more th one-third of all syphilis cases reporte and, more important, including a maj portion of all cases of early syphi treated.

6. *Distribution of antisyphilit drugs.*—In 1937, 1½ million doses of a senical drugs were distributed by Sta health departments. In 1943, the nu ber of doses distributed reached a pe of 11½ million. By 1947 the distributi of arsenicals dropped significantly, pri cipally as a result of the increased use penicillin.

7. *Routine serodiagnostic tests.*—Du ing the past 10 years the importance the widespread use of routine serodia nostic tests for syphilis has been demo strated by the results of premarital a prenatal blood tests. Furthermore, t routine performance of blood tests f syphilis conducted on an unprecedente scale as part of the general physical e amination given to selective-service re istrants revealed three-fourths of a m lion cases of syphilis; it also made stati tically possible estimates of the prev lence of syphilis among the entire popul tion of the United States—approximate 3,200,000 cases.

The American Neisserian Medical S ciety has before it a great opportunity encourage all practicing physicians look upon blood serologic tests for syp ilis as an essential routine part of eve physical examination.

. *Scientific information program.*—
e need for a constant flow to health
cers and practicing physicians of the
est research and clinical information
garding the diagnosis and treatment of
philis has been verified since 1937. The
ogress that has been made against
philis has been facilitated by a con-
nt interchange and dissemination of
entific information effected by the serv-
s of trained consultants, by postgrad-
te training courses, by seminars, and
the production and distribution of med-
l journals and other scientific litera-
re, and of clinical photographs.

9. *Public education.*—The ninth and
st of the fundamental principles of
philis control enumerated in 1937 was
blic education. Since that day, when
e word syphilis was scarcely mention-
le, remarkable results have been
hieved in making the public aware of
philis as a disease—communicable, pre-
ntable, curable. It is estimated that of
l patients treated today for primary and
condary syphilis two-thirds voluntarily
ek diagnosis as a result of public edu-
tion among civilians, and education
hich millions of persons in the younger
e groups received while they were in
e armed services. This information
s alerted them to the symptoms of
philis. However, much remains to be
ne if the number of voluntary appli-
nts for diagnosis and treatment is to be
creased.

Future Potentialities

esearch

All will agree, I believe, that real prog-
ss in the control of syphilis has been
ade during the past 10 years. This
ogress has been made possible by the
ill of the public to attack syphilis, as ex-
essed by their representatives in local,
tate, and national legislatures, by the
ork of health departments and the med-
al profession throughout the Nation,
nd by results of fundamental and ap-
ied research. Future progress in the
ntrol of syphilis will depend upon con-
nued public interest and support, con-
nued application by health departments and physicians of existing effective methods, and continued research investigations. Hope for substantial progress in the future lies not in any one of these alone, but in all three together.

Great potentialities, of course, lie in research, whose contributions often are dramatic. Before October 1943, for example, no one could possibly have predicted the revolution in the treatment of syphilis which was precipitated by Mahoney's cautious announcement that "the results of the blood studies indicate that the [penicillin] therapy was responsible for a more or less rapid and complete disappearance from the blood stream of the reacting substance which . . . is usually associated with activity in early syphilis."[3] No one can foresee what revolutionary changes comparable to those caused by penicillin may occur in the control of syphilis as a result of research now in progress.

Extensive investigations into a wide variety of fundamental research problems have been under way for years. Much research has been done by independent investigators working in universities and hospitals, and much has been done in the Public Health Service Venereal Disease Research Laboratory at Staten Island; the Medical Center, Hot Springs, Ark.; the Venereal Disease and Postgraduate Training Center, Johns Hopkins Hospital; and in cooperation with the Public Health Service at such institutions as the University of Pennsylvania, the Emory University School of Medicine, the Washington University Medical School, and the University of Rochester School of Medicine. At these institutions and elsewhere, research workers are investigating such basic research problems as experimental syphilis in the rabbit, the chemistry and pharmacology of penicillin, synergistic action of various antisyphilitic drugs, development of new antibiotics, syphilis serology, immunization, artificial culture of the virulent spirochete, life cycle of the spirochete, the organisms of yaws, pinta, and spontaneous spirochetosis, chemical prophylaxis, and a number of other studies. These investigators are utilizing the resources of such specialized branches of science as physics, photophysics, radiobiochemistry, chemical synthesis, botany, and mycology.

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[3] Published later in VENEREAL DISEASE INFORMATION, vol. 24, No. 12, December 1943. Pp. 355–357.

In addition to the knowledge such basic research can be expected to contribute to pure science, results are hoped for which may have great public health significance. For example, it is not inconceivable that new antibiotics even more satisfactory than penicillin will be discovered. Artificial cultivation of the spirochete would, in addition to its value to the field of bacteriology, provide a valuable approach to the study of induced immunity, and would facilitate the development of skin testing and a truly scientific basis for the serology of syphilis. The same may be said of studies to determine whether or not the life history of the organism of syphilis includes alternate active and resting stages.

There are two other realms of research which, if pursued, promise to yield information of importance. Psychiatric research can reveal the extent to which the random, indiscriminate sexual activity of some individuals may be the result of emotional maladjustment as contrasted with a true intensification of the basic sexual drive. Already the value of psychiatric consultation in the reduction of extreme promiscuity among selected patients has been demonstrated. Such research is concerned with abnormal individuals.

Another approach deals with normal masses. It can reveal the extent to which the sexual behavior of the population as a whole, or segments of the population, can be modified. Many data have already been obtained in large-scale studies of members of the armed forces and among civilians. These data suggest that sexual behavior patterns among groups of various educational and cultural levels are comparatively stable and cannot be quickly or markedly influenced by education or propaganda appeals motivated primarily by the wish to curtail the spread of the venereal diseases.

The principal lesson to be learned fr
studies of this character, as well as fr
the many other supplementary activiti
which are of real but limited value in t
control of syphilis is that, as we ha
known all along, there is no easy road
the control of syphilis which we can ta
to escape the hard but sure method
control by finding syphilis infections a
preventing their spread by treatment.

The Private Physician in Treatment a Case Finding

The treatment of syphilis has reach
the most promising point in the history
the disease. Penicillin administered i
tramuscularly every 2 or 3 hours ov
periods averaging about 9 days is now b
ing used successfully for the in-patie
treatment of most of the cases of prima
and secondary syphilis reported, and f
syphilis in several of its other stages a
manifestations. There is already e
couraging evidence that penicillin in o
and beeswax, which can be administer
once daily, will prove to be satisfacto
and thus provide a system of thera
easily used by the physician in his ov
office in his regular practice. Investig
tions regarding methods of administeri
penicillin in other forms, such as pe
cillin in oil and pectin or micronized pe
icillin, may result in further simplific
tion and improvement of therapy.

A variety of schedules of treatment
all forms of syphilis are constantly bei
evaluated. The principal objective
these studies, of course, has been to d
termine the most effective total dosag
size of individual doses, and time int
vals between doses, as well as the value
combination schedules employing arse
or bismuth or both, or fever, along wi
penicillin.

An important tool which has been gro
ing in breadth and usefulness in su
studies is the statistical and mathema
cal analysis of research and clinical dat
It is our hope that we can bring abo
a closer working cooperation among a
alysts and research and clinical worke
in the medical aspects of venereal d
ease.

n view of the relative certainty that edules of penicillin therapy suitable office practice will be widely used in very near future, much of the poten- l progress in syphilis control lies large- in the hands of the practicing physi- n. The accuracy of this statement h respect to treatment is obvious, but suggestion that the medical profession ively enter case finding requires some boration.

Not everyone is fully aware that 35 cent of all cases of syphilis reported h year have been found by private ysicians in the regular course of their ily practice. Exact statistics are not ilable to show precisely what percent- e of all cases of syphilis brought to atment are under the management of private physician, but there is some idence that this proportion may be as gh as 50 percent. This is remarkable, view of the fact that venereal disease se finding is commonly regarded pri- arily as a health department function. t it is not at all remarkable when it is alled that the manifestations of syphi- are varied, and frequently bring pa- nts to the physician with complaints at, to the uninformed, would appear to ve no relation to venereal disease. Nor it remarkable when considered in the ht of the fact that modern medical actice employs thoroughgoing physical aminations, and that the blood test is re and more becoming routine. Neither the health department nor the private physician has reached the peak of productive capacity in syphilis case finding. The private physician is in an ideal situation to interview infected patients to discover the identity of possibly infected contacts. The possibility of the reinfection of a patient after treatment and cure of syphilis makes contact investigation of importance to the physician. Aside from the physician's interest in seeing that existing infections be brought to treatment for the sake of syphilis control in general, his interest lies more specifically in the danger that a patient who has been treated successfully will acquire a new infection from a person to whom that patient has spread his own original infection, unless that person also is brought to treatment.

In conclusion, I wish again to express gratification that the American Neisserian Medical Society has joined aggressively and wholeheartedly in the extraordinarily challenging fight against syphilis. This development is historically appropriate because the entire problem of syphilis control has progressed to the stage where, more than ever before, it is recognized as fundamentally a medical problem whose ultimate solution can be achieved by the improvement, the wider application, and the extension, particularly through efficient case finding, of medical control measures.

Quantitative Serologic Tests for Syphilis

I. Standard Method of Reporting[1]

Ad Harris, Serologist, United States Public Health Service

An increased demand for quantitative rologic testing has been associated with e advent of rapid therapeutic measures for the treatment of syphilis. Requests for quantitation in serologic tests for syphilis will become more numerous as the recently developed treatment methods are more generally used. Titered serologic findings are primarily necessary in the guidance of treatment of this disease with penicillin, since they serve as the principal guide for determination of treatment adequacy or of reinfection.

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[1] From the Venereal Disease Research Lab- atory, U. S. Marine Hospital, Staten Island N. Y. Director: J. F. Mahoney, Medical irector, U. S. Public Health Service.

Because the terminology used for reporting quantitative findings is not similar for all the accepted serologic methods, an unwarranted extra burden of cross-interpretation is placed on the clinician and evaluation analyst. It is the purpose of this presentation to discuss systems of reporting attached to the most widely used quantitative serologic tests and to describe a simplified reporting method that may be applied to all quantitative flocculation and complement-fixation tests utilizing serum or spinal fluid dilutions.

Quantitative reporting is not similar for the many different tests for syphilis even in those instances wherein a common term such as "units" is used. The units of one testing procedure may have no constant relationship to the units of another. Hence, an identical finding in two or more tests may result in reports of different numerical values. This may be visualized by comparing the several reports that may be issued from a single quantitative test finding when different designated reporting methods are applied.

To illustrate this point, a hypothetical situation will be used in which a specimen is found to give positive reactions in dilutions of 1:2, 1:4, 1:8, and 1:16; doubtful reactions at 1:32 dilution; and negative findings in greater dilution, in each of four testing methods. Using the Kahn, Kolmer, Eagle, and Kline test procedures, the reported results will be found to be 64, 64, 24, and 16 units, respectively.

The differences in reported titers, in these instances, are attributable to the dissimilar methods of calculation and interpretation applied to observed findings. It is more desirable that titer variations, in quantitative serologic tests for syphilis, be reflective of changes in specimen reactivity, since these tests are performed for the sole purpose of quantitating the reactive component of serums or spinal fluids. Any easily understood reporting method applicable to all testing procedures of this type would serve the u
ful purpose of diminishing the con
sion sometimes attendant to the clini
application of these laboratory findin

A simple statement, in numeri
terms, of the greatest dilution at whi
the tested specimen produced a positi
reaction, in the designated test, prese
itself as the most logical type of quan
tative serologic report. Such a mann
of reporting, now prescribed by so
technics, is applicable to other diluti
procedures. It is necessary, however, th
the number value of such reports be
companied by some identifying word
phrase in order that they may be differe
tiated from the variable serologic te
"units."

It is therefore suggested that quantit
tive serologic reactions be reported
terms of the greatest dilution in whi
the tested specimen produces a positi
reaction and that the term "dils," a c
traction of the word dilutions, be used
identify these dilution reactivity e
points. For this purpose, reactivity e
points would be those reactions describ
as "positive" by the technic used.
this means, reactions of identical inte
sity would receive the same report,
terms of "dils," when different testi
methods are employed.

A recording of "16 dils" attached
the report of a quantitative serologic te
for syphilis would indicate that the test
specimen produced positive reactions
dilutions up to and including, but n
greater than, 1 to 16. A specimen foun
to react positively only in the undilut
state would be reported as a "1 dil" r
actor. A comparison of this and oth
reporting methods is presented in table

Discussion

The method herein recommended f
reporting results of quantitative serolog
tests for syphilis is simple, since the n
merical value indicates the greatest dil
tion at which the specimen was found
produce a positive reaction and becau
the term "dils" will indicate to the ph
sician receiving the serologic report th
only the dilution factor is considered.

ABLE 1.—*Comparison of a suggested standard reporting method with other methods*

Specimen No. 1			**Specimen No. 2**		
action: Positive in dilutions of 1:2, :4, 1:8, and 1:16; doubtful in dilu-ion of 1:32; negative in greater dilu-ion.			Reaction: Positive in dilutions of 1:2, 1:4, 1:8, 1:16, and 1:32; doubtful in dilution of 1:64; negative in greater dilution.		
Tests	Reports		Tests	Reports	
	Technic method [1]	Recommended method		Technic method [1]	Recommended method
		Dils			*Dils*
hn (*1*)	64 units	16	Kahn (*1*)	128 units	32
lmer (*2*)	64 units	16	Kolmer (*2*)	128 units	32
gle (*3*)	Reagin titer of 24, or positive to 1:24 dilution.	16	Eagle (*3*)	Reagin titer of 48, or positive to 1:48 dilution.	32
ine (*3*)	16 units	16	Kline (*3*)	32 units	32
azzini (*3*)	Positive to 1:16 dilution.	16	Mazzini (*3*)	Positive to 1:32 dilution.	32

eporting Methods

Kahn.—"In the case of sera that are positive on dilution, the quantitative titer is tained by multiplying by 4 the highest dilution showing a definite precipitate.

"Briefly, when a serum on dilution shows a 4+, 3+, or 2+ reading in the quantita-e test, the results are computed according to the formula S=4D in which S is e potency of the serum in terms of units and D the highest dilution showing the ecipitate."

Kolmer.—"Otherwise the results may be reported in terms of Kolmer units in which e potency of any serum or spinal fluid is determined according to the formula =4D as used in the Kahn quantitative serum test . . ."

Eagle.—"If it is necessary or desirable to ascertain the degree of positivity of a own positive serum, this can be done by carrying out the routine test on serial utions of serum:

"Dil. of serum:	1	1:2	1:4	1:8	1:16	1:32	1:64	1:128
"Result:	+	+	+	+	+	+	±	0

"In the example here shown, the serum is positive to a 1:48 dilution, a reagin er of 48."

Kline.—"Slide tests are then performed on each dilution and the last dilution in ich there is a two plus positive reaction is the titer of the serum, or the number slide test units."

Mazzini.—"The results may be reported in terms of the actual quantity of serum sted, . . . or they may be reported in terms of positiveness according to the highest lution giving a positive reaction, such as positive up to a 1:16 dilution."

Several arguments can be brought against the use of this reporting method however. One of these may be that a finer estimation of reactivity end point would be desirable and that this could be accomplished by using interpolation factors between positive and doubtful reactions. Another is that each dilution zone represents four reading values, e. g., 1+, 2+, 3+, and 4+, so that the reported number should be four times the dilution end point.

The precision of spot testing, as is employed in testing serial specimen dilutions, is limited. To report findings obtained by this means in a series of very small divisions only magnifies the lack of absolute reproductibility inherent in serologic testing procedures. Multiplying the dilution factor by 4 may also tend to convey a false impression of relative specimen reactivity levels. When this method is used for only one of two tests, the "units" reported are four times greater for one test even though both testing procedures are of equal sensitivity.

Since serum dilution reactivity end points are commonly used for reporting results of agglutination and precipitin tests for typhoid, paratyphoid, typhus fever, and other diseases, many persons are familiar with the meaning of this ty of laboratory report. A standardiz method of reporting quantitative rea tions of serologic tests for syphilis, fo lowing the same pattern, should also readily understood and accepted.

As the method herein recommended ca be incorporated into a testing routi without modification of existing test m chanics, test reactivity levels would n be effected. The final advantage of standardized procedure is that it pr motes uniformity by furnishing a patte which can be adopted by tests of the f ture.

Summary

A simplified reporting method that ma be applied to all flocculation and compl ment-fixation tests for syphilis that en ploy serum and spinal fluid dilutions presented and discussed.

References

1. KAHN, R. L.: Technique of Standard Ka Test and of Special Kahn Procedur Ann Arbor: University of Michig Press, June 1946.
2. KOLMER, J. A.; BOERNER, F.: Approv Laboratory Technic. 4th ed. N York: D. Appleton-Century Co., In 1945.
3. Technic of Serodiagnostic Tests for Syp ilis. VD Graphic 85. Raleigh: Vener Disease Education Institute, 1944.

CURRENT LITERATURE

NOTE: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the past 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

CTA DERMAT.-VENEREOL., STOCKHOLM

Cultivation of gonococci as diagnostic method in gonorrhoea in women. II. Transport of material for bacteriological examination for gonococci. F. Reymann. 25: 9–28, June 1944. (Abstracted in Bull. Hyg., London, 22: 189–190, Mar. 1947.)

CTA MED. ORIENTALIA, JERUSALEM

New quick method for staining Treponema pallidum. H. A. Cohen. 6: 99, Mar. 1947. (Abstracted in J. A. M. A., Chicago, 134: 1271–1272, Aug. 9, 1947.)

M. J. PUB. HEALTH, NEW YORK

Wartime Army medical laboratory activities. The wartime Army medical laboratory organization. Gustave J. Dammin. 37: 811–814, July 1947.

Health education in Mexico. Manuel González Rivera. 37: 849–852, July 1947.

M. J. ROENTGENOL., SPRINGFIELD

*Disseminated granuloma inguinale of bones. William J. Rhinehart and John T. Bauer. 57: 562–567, May 1947.

Disseminated granuloma inguinale of ones. William J. Rhinehart and John Bauer. Am. J. Roentgenol, 57: 562–67, 1947.

The authors point out that while granloma inguinale is generally considered be a local disease affecting the mucous embranes and skin of the genital and guinal regions, it may on occasion beome widespread and extend to other arts of the body. A case is presented, robably the first in the roentgenologic iterature, illustrating the roentgenoraphic changes noted in a patient whose rimary lesion was in the cervix uteri.

The patient was a female Negro, aged 3, admitted to the Pennsylvania Hospital n August 1944 with the complaint of a oul, bloody vaginal discharge, pain in the left hip, and nausea of 1 month's duration. A supravaginal hysterectomy had been done in 1935. The patient had previously had antisyphilitic therapy in connection with four miscarriages at about the second month of gestation. On examination, the patient presented tender inguinal regions, low fever, but no scars or external lesions of the vulva or inguinal region. The cervical stump of the uterus was almost completely destroyed by an ulcerating growth which involved the vaginal vault and was continuous with a mass in the left posterior pelvis. A biopsy of the vaginal lesion revealed specific granulomatous tissue consisting of vacuolated macrophages filled with Donovan bodies.

There was a generalized demineralization of the bones of the extremities. The defects of the bones were multiple, irregular, osteolytic lesions of the cortex. Aspiration of a tibial lesion and biopsy later revealed characteristic cells of granuloma inguinale containing Donovan bodies. Tartar emetic and later fuadin were administered too late to be effective, and the patient died in December 1944, with a hemorrhage from the vagina.

The pathologic changes noted at necropsy are described in detail by the authors. The final pathologic diagnosis included granuloma inguinale of the cervix uteri with ulceration of the vagina, bladder, rectum, and extension to retroperitoneal tissue about the pelvis; ulceration of the left hypogastric vein with fatal massive hemorrhage; metastatic area of granuloma inguinale in tibia, fibula, frontal bone, and lungs; granuloma inguinale of pelvic lymph nodes; swelling of liver and right kidney (necrotic left kidney removed before death); and atrophy of heart, thyroid, and adrenals.

The authors point out that osseous lesions of the type described in the presence of obscure genital lesions should suggest the possibility of disseminated granuloma inguinale, and that diagnosis of the disease should be established by biopsy with search for macrophages containing Donovan bodies.

Am. J. Syph., Gonor. & Ven. Dis., St. Louis

- *Studies on the complement fixation reaction in lymphogranuloma venereum. Margaret J. Wall, Albert Heyman and Paul B. Beeson. 31 : 289–299, May 1947.
- *Treatment of acute gonococcic urethritis with single subcutaneous injections of penicillin in beeswax-peanut oil. David Frost, Manuel F. Allende, William M. M. Kirby and Harold S. Ginsberg. 31 : 300–303, May 1947.
- *A quantitative macroprecipitation test for syphilis with the cardiolipin-lecithin-cholesterol antigen. Rachel Brown. 31 : 304–313, May 1947.
- Reactivity of tests using cardiolipin antigens in a limited number of nonsyphilitic cases. G. W. Stout. 31 : 314–321, May 1947.
- *Vertigo as the presenting and only symptom in neurosyphilis. Bernard J. Alpers. 31 : 322–324, May 1947.
- Theoretical considerations in venereal disease control planning. Morris Leider. 31 : 325–335, May 1947.

Studies on the complement fixation reaction in lymphogranuloma venereum. Margaret J. Wall, Albert Heyman and Paul B. Beeson. Am. J. Syph., Gonor. & Ven. Dis., 31 : 289–299, 1947.

In this article is presented an intensive clinical and laboratory investigation of lymphogranuloma venereum and chancroid, carried out in Grady Memorial Hospital, Atlanta, Ga. Lymphogranuloma venereum was diagnosed by isolation of the virus, and chancroid by culture of the Ducrey bacillus. Patients in this study were investigated serologically in an attempt to determine the value of the complement-fixation test for lymphogranuloma venereum. The findings in 27 cases of lymphogranuloma venereum and in a control group of 45 cases of chancroid are presented.

Sulfathiazole therapy was usually begun shortly after the first visit of eac patient, 4 gm. of the drug being given eac day until a total of about 40 gm., in general, had been administered in 2 weeks Sterile specimens of serum were obtaine at various intervals of time from patient and "lygranum CF" antigen (Squibb) wa used throughout the study. Control antigens consisted of normal yolk-sac tissue processed similarly to the lymphogranuloma antigens. The technic of the complement-fixation test is described in detai

All 27 patients with lymphogranulom venereum and 27 of the 45 patients wit chancroid had positive complement-fixation tests. In 20 cases of lymphogranuloma venereum, the titer was 1 : 160 o higher, the maximum titer usually bein reached in about 3 to 6 weeks after th appearance of the bubo.

More than half the patients with chancroid gave positive complement-fixatio reactions, but the titers were lower tha in the group with lymphogranulom venereum, 31 of the 45 patients givin either negative results or a titer of 1 : 2 or less. It thus appears that, in general a titer of 1 : 160 or higher indicates activ infection with the virus of lymphogranuloma venereum, whereas a persisten titer of 1 : 20 or less excludes it, according to the authors.

Treatment of acute gonococcic urethritis with single subcutaneous injections of penicillin in beeswax-peanut oi David Frost, Manuel F. Allende, Willia M. M. Kirby and Harold S. Ginsberg Am. J. Syph., Gonor. & Ven. Dis., 31 300–303, 1947.

Since it has been shown that absorption occurs more regularly, with greate prolongation of bacteriostatic concentrations of penicillin in the blood stream when penicillin-beeswax-peanut oil mixtures are administered by the subcutaneous rather than the intramuscular route a study was undertaken to treat a serie of 360 patients with acute gonococcic urethritis by means of a single subcutaneou injection of a standard penicillin-beeswax-peanut oil mixture, and to compar e percentage of cures with those obined by the intramuscular route.

In this study, a commercial penicillin-eswax-peanut oil mixture containing 3 percent beeswax and 300,000 units of nicillin per cubic centimeter was used. single subcutaneous injection of 300,000 nits (1 cc.) of the preparation was adinistered to the 360 patients in whom e diagnosis was made by the history, esence of urethral discharge, and a posive smear and/or culture. Posttreatent .observation consisted of clinical amination, smear, and culture of any ethral discharge, in addition to culture the centrifuged urine sediment, made n the seventh, fourteenth, and twentyrst days following treatment.

Reactions included moderate soreness r from 24 to 48 hours at the site of inection in almost every instance. In pproximately 10 percent of the patients, nduration and nodule formation occurred t this site. These nodules appeared to e associated with the depth of the injecon, for when the mixture was inserted uperficially into the skin itself, nodules nd sterile abscesses were encountered, ut when the material was injected well own into the subcutaneous tissues, the ocal reactions were minimal. No intances of urticaria or angioneurotic dema were noted.

Two hundred of the patients treated ere followed for at least 21 days with eekly clinical and bacteriologic examiations. Of these, cures were obtained n 177. Since 11 of the 23 failures were etected on the twenty-first day following herapy, the necessity of a minimum ollow-up period of at least 21 days is mphasized.

It was shown in this study that aproximately 90 percent of patients were ured and 10 percent were failures with herapy consisting of a single subcutaneus injection of penicillin-beeswax-peaut oil, results comparable to those obained by intramuscular administration. t is therefore concluded that the adminstration of this preparation by either echnic constitutes the simplest and most atisfactory method of treating acute gonococcic urethritis available at the present time.

A quantitative macroprecipitation test for syphilis with the cardiolipin-lecithin-cholesterol antigen. Rachel Brown. Am. J. Syph., Gonor. & Ven. Dis., 31: 304–313, 1947.

This report describes a quantitative macroprecipitation test for syphilis which employs purified antigen composed of cardiolipin, lecithin, and cholesterol and an artificial 2+ standard for reading. The author also illustrates the application of the test to several cases of syphilis undergoing intensive therapy.

The stock antigen used in routine testing contains 0.03 percent of cardiolipin, 0.75 percent of lecithin, and 0.25 percent of cholesterol. However, a slightly less concentrated antigen, consisting of 0.024 percent of cardiolipin, 0.6 percent of lecithin, and 0.2 percent of cholesterol was selected as optimal for tests with diluted serums. The test employs a single amount of serum, 0.1 ml., with three amounts of antigen suspension, 0.02, 0.04, and 0.06 ml. These multiple doses of antigen react with proportional amounts of serum to give a similar degree of precipitation. The adoption of an artificial minimum 2+ standard for reading is said to extend the application of the test, since with this degree of precipitation, at which the degree of reaction becomes significant and slight variations may be readily observed, the reading of the tests becomes more uniform and variations due to the personal element are reduced to a minimum.

Serum titers are determined by the application of the quantitative relationship between serum and antigen. In the case of serums of slight reactivity, undiluted serums and three different amounts of antigen are used, whereas in the case of serums of greater reactivity, the diluted serum is used.

The results of serologic tests in a few individual cases of treated syphilis are presented in order to illustrate the application of titers as obtained in the quantitative precipitation test. These titers are compared with titers obtained with the New York State quantitative complement-fixation test, which has been used successfully for the measurement of serologic response to syphilitic infection. With few exceptions, similar serologic patterns are presented by both tests when the reagin content of the serum of a given patient is determined over a period of time and relapses have so far been indicated practically simultaneously by both tests.

The quantitative macroprecipitation test for syphilis, when compared with the quantitatively standardized complement-fixation procedure, has therefore been found to give results that reflect the course of syphilitic infection and the response to treatment.

Vertigo as the presenting and only symptom in neurosyphilis. Bernard J. Alpers. Am. J. Syph., Gonor. & Ven. Dis., 31: 322–324, 1947.

The author reports on two rare cases of neurosyphilis in which labyrinthine vertigo was the only presenting symptom.

The first case was that of a white man, aged 37, admitted to the hospital with severe paroxysmal vertigo with only overactive reflexes on examination. The patient had been well until 1944 when he developed a severe attack of vertigo characterized by a disturbance of the equilibrium and lasting 45 minutes. Similar attacks occurred in 1945 and again in 1946, during the last of which he was unable to stand for approximately 1 hour. The patient had had a chancre in 1926 and in 1941 was found to have a positive Wassermann. Intensive bismuth and mapharsen therapy was administered from 1941 to 1943, but the blood Wassermann remained positive. During a 10-day stay in the hospital in 1946, he received 5 million units of penicillin, in addition to malarial fever (106 hours over 100° F.). He has remained well to the present time (1946).

The second case was that of a 59-year-old man admitted to the hospital in 1945 with severe paroxysmal vertigo, overactive reflexes, but no other physical or
neurologic findings. The blood Wasse
mann and spinal fluid Wassermann we
strongly positive and the gold curve p
retic. Six months before admission to t
hospital he had had a persistent so
throat found to be of syphilitic origi
Fifty-one injections of bismuth were a
ministered in this 6-month period. Durin
the present hospital stay he was give
2,420,000 units of penicillin in 3 week
and was discharged free of vertigo.

In neither of these cases was there an
memory loss or personality chang
Overactive reflexes were the only attr
butes of parenchymatous syphilis foun
The causal relationship between the ve
tigo and neurosyphilis was therefore e
tablished by (1) the blood and spin
fluid findings, both of which gave clea
evidence of syphilis; (2) the relief of th
symptom after treatment; and (3) th
absence of evidence of any other diseas
It is considered probable that the verti
resulted from an interstitial neuritis
the auditory nerve in the course of
localized meningitis.

ANN. BIOL. CLIN., PARIS

Encore une microméthode de sérologi
Dépistage de la syphilis en deux étape
(Another micro-method in sero-diagnosi
Diagnosis of syphilis in two stages
F. Vahl. 4: 122–123, Apr. 1946. (A
stracted in Bull. Hyg., London, 22: 2
Jan. 1947.)

La réaction de Meinicke dans l'exsudat
chancre syphilitique. (The Meinicke r
action in chancre exudates.) F. Vah
4: 124, Apr. 1946. (Abstracted in Bu
Hyg., London, 22: 29, Jan. 1947.)

ARCH. DERMAT. & SYPH., CHICAGO

Granuloma inguinale. Frank C. Combe
(New York Academy of Medicine, Secti
of Dermatology and Syphilology, Oct.
1945.) Society Transactions. 55: 84
June 1947.

Frambesiform tertiary syphilis. Frank
Combes. (New York Academy of Me
cine, Section of Dermatology and Syph
ology, Oct. 2, 1945.) Society Tran
actions, 55: 840–842, June 1947.

Pustular syphilis. John W. Lentz a
Meyer L. Niedelman. (Philadelphia De
matological Society, Oct. 19, 1945.) S
ciety Transactions. 55: 859, June 194

A case for diagnosis (granuloma annular
lupus erythematosus tumidus?). J. Wa
ter Wilson. (Los Angeles Dermatologic

Society, Oct. 9, 1945.) Society Transactions. 56: 114–115. July 1947.

Late chronic lymphogranuloma venereum with elephantiasis. J. H. Barr, Jr. and J. Kam. (Cleveland Dermatological Society, Oct. 25, 1945.) Society Transactions. 56: 125–126, July 1947.

L. ASOC. MÉD. DE PUERTO RICO, SANTURCE

Neurosifilis. R. Troyano de los Rios. 39: 187–192, May 1947.

Mortality from heart disease in Puerto Rico. II. Incidence of cardiovascular disease in 1100 consecutive autopsies. Manuel de la Pila Iglesias. 39: 230–237, June 1947.

RIT. J. VEN. DIS., LONDON

The effects of penicillin administration on menstrual and other sexual cycle functions. A. E. W. McLachlan and Donald D. Brown. 23: 1–10, Mar. 1947.

Commercial penicillins and the treatment of syphilis: some recent American developments. R. R. Willcox. 23: 11–14, Mar. 1947.

The evolution of syphilis after small doses of penicillin: a critical survey. E. Cronin. 23: 15–19, Mar. 1947.

Venereal diseases in the British-occupied zone of Germany. F. R. Curtis. 23: 20–30, Mar. 1947.

A discussion on penicillin therapy in venereal diseases in women. 23: 31–39, Mar. 1947.

Local penicillin in lymphogranuloma inguinale. G. O. Mayne and A. D. Bain. 23: 40, Mar. 1947.

Acute encephalopathy and arsenotherapy of syphilis. J. Sydney McCann. 23: 41–43, Mar. 1947.

RIT. M. J., LONDON

Treatment of Reiter's syndrome by gold salts. R. R. Willcox, G. M. Findlay and A. Henderson-Begg. No. 4501: 483–484, Apr. 12, 1947.

Reiter's syndrome. No. 4501: 495–496, Apr. 12, 1947.

RUXELLES-MED., BRUSSELS

Carriers of syphilis. (Les proteurs de germes syphilitiques.) A. Bessemans and J. Vercoullie. 26: 1133, 1946. (Abstracted in Brit. J. Ven. Dis., London, 23: 45, Mar. 1947.)

De l'hérédo-syphilis paternelle à la syphilis conceptionnelle. (From paternal inherited syphilis to conceptional syphilis.) 26: 1331–1339, Nov. 10, 1946. (Abstracted in Bull. Hyg., London, 22: 185–186, Mar. 1947.)

ULL. INTERNAT. SERV. SAN., LIÉGE

La prophylaxie antivénérienne. (Venereal prophylaxis.) A. Thulliez. 19: 406–411, Oct. 1946. (Abstracted in Bull. Hyg., London, 22: 111, Feb. 1947.)

BULL. NEW YORK ACAD. MED., NEW YORK

Recent advances in the medical treatment of heart diseases. Paul D. White. 23: 441–453, Aug. 1947.

BULL. U. S. ARMY M. DEPT., WASHINGTON

Studies on gonococcal and nongonococcal urethritis among troops in the Pacific theater. 7: 660–661, Aug. 1947.

CALIFORNIA MED., SAN FRANCISCO

*Medical progress: progress in the management of syphilis. J. F. Flynn and O. Milton Stout. 66: 306–310, May 1947.

(Meningovascular syphilis.) Clinical-pathological conference. Los Angeles County General Hospital. Nov. 27, 1946. 66: 314–315, May 1947.

Cutaneous reactions to penicillin. Ben A. Newman. 66: 349–352, June 1947.

Medical progress: progress in the management of syphilis. J. F. Flynn and O. Milton Stout. California Med., 66: 306–310, 1947.

The authors discuss the state of flux characterizing syphilotherapy since the discovery of penicillin in 1943, and present some of the fundamentals of diagnosis, treatment, posttreatment observation, and re-treatment in the successful management of the disease.

Recent experience in diagnostic difficulties due to nonspecific reactions is discussed. These reactions are said to be numerous, especially with precipitation or flocculation tests, such as the Kahn, Kline, Eagle, and Mazzini tests. A generally accepted method of differentiation between nonspecific and specific reactions by any one serologic procedure is not at present available, and verification tests are inconclusive. However, the quantitative serologic test for syphilis is an aid in such differentiation, as most false positive blood tests are either of short duration (days to weeks) or of low titer. Most false positive tests can be revealed by serial quantitative serologic tests carried out over a period of a few weeks at most. Other conditions in which the quantitative serologic test frequently leads to the correct conclusion include relapsing syphilis, congenital syphilis, and prozone phenomenon.

When quantitative tests are not available in congenital syphilis, it is advisable to treat the child if strongly positive tests are obtained beyond the sixth or eighth week of life. Roentgenograms of the long bones are often helpful, since approximately 90 percent of untreated syphilitic infants will show evidence of osteochondritis or periostitis in roentgenograms at the age of 6 to 8 weeks.

Details are given for the penicillin treatment of early and latent syphilis, early congenital syphilis, neurosyphilis, cardiovascular syphilis, and syphilis in pregnancy, with stress on the use of crystalline penicillin G or a penicillin of high G content. Also discussed are the following conditions which may result from rapid treatment of syphilis: Cure, relapse, neurorelapse, treatment failure, seroresistance, and reinfection. Immediate re-treatment with penicillin, or, in some instances, with arsenicals and bismuth in addition to penicillin, is recommended in serologic or clinical relapse, reinfection, and treatment failure.

CANAD. J. PUB. HEALTH, TORONTO

The challenge of psychiatry in 1947. Leslie R. Angus. 38 : 157–167, Apr. 1947.

The compulsory premarital serological test in Alberta. Harold Orr. 38 : 232–235, May 1947.

CANADA'S HEALTH & WELFARE, OTTAWA

Fight VD on 4 sectors. (Special supplement No. 2.) 2 : June 1947.

CINCINNATI J. MED., CINCINNATI

Endocrine therapy in obstetrics and gynecology. (Gonorrheal vaginitis.) Herbert F. Traut. 28 : 453–473, July 1947.

Clinical pathological conference. (Syphilis. Case report.) Cincinnati General Hospital. Feb. 20, 1947. Morton Hamberger and Richard Austin. 28 : 480–487, July 1947.

Topical penicillin. Editorial. 28 : 488–489, July 1947.

(Syphilitic aortitis?) Clinical pathological conference. Cincinnati General Hospital. Feb. 13, 1947. Ralph J. Johansmann. 28 : 528–537, Aug. 1947.

CONNECTICUT HEALTH BULL., HARTFORD

Laboratory reports on premarital specimens. Edith E. Wahlers and Friend Lee Mickle. 61 : 148–150, June 1947.

Laboratories. Report for May 1947. 61 : 161, June 1947.

Preventable diseases. Incidence of disease for May 1947. 61 : 166–167, June 1947.

DERMOSIFILOGRAFO, TORINO

Sull' importanza del ceppo gonoccocci nel fenomeno della sulfonamido-resisten (Importance of the gonoccocal strain resistance to sulphonamides.) Midana. p. 169. (Abstracted in Br J. Ven. Dis., London, 23 : 50–51, Ma 1947.)

HEALTH BULL., NORTH CAROLINA STA BD. OF HEALTH, RALEIGH

Venereal Disease Education Institut Capus Waynick. 62 : 11–12, June 194

Field epidemiological study of syphili John J. Wright. 62 : 12–14, June 194

HOSP. CORPS QUART., WASHINGTON

Penicillin acrosol therapy. Alice I. Sear 20 : 13–15, July–Aug.–Sept. 1947.

ILLINOIS M. J., OAK PARK

Report of the committee on venereal disea control. 92 : 49–51, July 1947.

INDIAN M. GAZ., CALCUTTA

Notes on some remedies. VI. Sulphon mides. (Part II.) Therapeutic Note R. N. Chaudhuri. 82 : 77–80, Feb. 194

Notes on some remedies. VII. Sulphon mides. (Part III.) Therapeutic Note R. N. Chaudhuri. 82 : 131–134, Ma 1947.

J. A. M. A., CHICAGO

Aerosol penicillin. Blood levels of per cillin obtained by inhalation of aeroso produced by a combined steam generat and aerosolizer, with the use of propyle glycol, tents and a breathing box. Sa uel J. Prigal, Thomas H. McGava Francis D. Speer and Raymond Harri 134 : 932–938, July 12, 1947.

Fertility studies of the male in barren ma riages. Lewis Michelson and Rob Michelson. 134 : 941–944, July 12, 194

Nebulization therapy in bronchiectasis. T use of penicillin and streptomycin aer sols. Arthur M. Olsen. 134 : 947–95 July 12, 1947.

Low postwar venereal disease rate. 13 1183, Aug. 2. 1947.

Treatment of cardiovascular syphili Queries and Minor Notes. 134 : 120 Aug. 2, 1947.

*Histoplasmosis. A review of the cutaneou and adjacent mucous membrane ma festations with a report of three case Arthur C. Curtis and John N. Greki 134 : 1217–1224, Aug. 9, 1947.

Asymptomatic neurosyphilis. Queries a Minor Notes. 134 : 1276–1277, Aug. 1947.

Program for the activation of neurology u der the Vetcrans Administration. Pear Bailey. 134 : 1283–1287, Aug. 16, 1947.

Prevention of reaction to BAL. Mauray Tye and John M. Siegel. 134: 1477, Aug. 23, 1947.

Immunity in syphilis. Editorial. 134: 1485, Aug. 23, 1947.

Histoplasmosis. A review of the cuta- ous and adjacent mucous membrane nifestations with a report of three ses. Arthur C. Curtis and John N. ekin. J. A. M. A., 134: 1217–1224, 1947.

In this discussion of histoplasmosis, the thors deal with syphilitic infection in e differential diagnosis of this disease. though most cases of histoplasmosis ve been systemic and generalized, in- lvement of the skin and nearby mucous embranes is common. Approximately cases have been described in the past 8 ars, many with primary or secondary tensions to the skin. The tissue path- ogy is that of a granuloma with pseudo- bercle formation, necrotic foci bordered macrophages containing the organism istoplasma capsulatum, and areas of ceration.

One case of histoplasmosis resembling philis is presented. The patient, a 23- ear-old Negro who had developed a enile sore in February 1942, was ad- itted to the Michigan Rapid Treatment enter in March 1945. Examination howed fairly extensive ulceration of the repuce with two round shallow ulcers; onsiderable erythema and erosion were resent on the glans penis. The ingui- al lymph nodes were slightly enlarged laterally, discrete, not tender, and of ubbery consistency.

Biopsy material from the penile lesions evealed hyperplasia and ulceration of he epidermis. H. capsulatum was dem- onstrated in material from the lesions nd from the lymph nodes.

Treatment consisted initially of the in- ramuscular administration of 5.1 million nits of penicillin in divided doses over a eriod of 19 days, followed by the ad- inistration of 522 gm. of sulfadiazine uring an interval of 87 days. At the ast examination, the penis was found to e enlarged because of chronic lympho- tasis, but there was no apparent clinical activity, and biopsy did not reveal organisms of H. capsulatum.

The authors state that gumma, primary syphilis, and granuloma inguinale are to be considered in the differential diagnosis of histoplasmosis. The presence of regional adenitis and the persistence of the lesions are of help in distinguishing histoplasmosis from granuloma inguinale and from the syphilitic chancre, respectively. The importance of histologic study of the lesions and the making of cultures from infected material is stressed in the diagnosis of histoplasmosis.

J. AM. PHARM. A. (SCIENT. ED.), WASHINGTON

Quantitative assay of the intravenous toxicity of streptomycin in mice. Walther H. Ott. 36: 193–197, July 1947.

J. FLORIDA M. A., JACKSONVILLE

Manifestations of some internal diseases in the fundus of the eye. W. J. Knauer. 34: 89–95, Aug. 1947.

J. INDIANA M. A., INDIANAPOLIS

*Tertiary syphilis of the larynx: its diagnosis, pathology and treatment. Joseph L. Larmore. 40: 638–643, July 1947.

Tertiary syphilis of the larynx: its diagnosis, pathology and treatment. Joseph L. Larmore. J. Indiana M. A., 40: 638–643, 1947.

The author notes that since 1926, only 9 cases of tertiary syphilis of the larynx have been reported in medical literature, and states that his purpose in presenting this paper is to call attention to the fact that the complication does still occur and may require surgical measures (tracheotomy).

Since there are no pathognomonic signs or symptoms of tertiary syphilis of the larynx and diagnosis may be difficult, the best aid to diagnosis, according to the author, is to keep in mind that the condition does still exist and that the pathology of syphilis of the larynx is essentially the same as the pathology of syphilis elsewhere in the body. A simple classification of the pathologic forms quoted from Moure as an aid in diagnosing tertiary lesions of the larynx are given as: (1) gumma; (2) ulceration; (3) perichondritis; (4) pseudopolypoidal form; (5) laryngeal stenosis; and (6) paralysis.

Adequate treatment is recommended for the syphilis, with care not to overtreat the patient. Tracheotomy should be considered if any signs of dyspnea develop. Chronic stenosis should be given the same treatment as laryngeal stenosis from other causes.

One case report given in full detail is commented upon by the author as illustrating that tertiary syphilis of the larynx, if properly treated before ulceration develops, will undergo nearly complete resolution and that the laryngeal structures will return to normal in appearance and function. The author states that this case also demonstrates that dyspnea as a result of space-taking lesions of this type may be immediately relieved by tracheotomy.

J. KANSAS M. SOC., TOPEKA

Venereal disease. Committee Reports. 48: 192, Apr. 1947.

Advisory laboratory commission. 48: 368, Aug. 1947.

J. DE MÉD. DE BORDEAUX, BORDEAUX

Sulfamido-résistance croissante du méningocoque. (Increasing sulphonamide resistance of meningococci.) E. Aubertin, H. Pouyanne and Dubreuilh. 123: 356, Sept. 1946. (Abstracted in Bull. Hyg., London, 22: 17–18, Jan. 1947.)

J. MICHIGAN M. SOC., ST. PAUL

Treatment of urinary tract infections. Reed M. Nesbit and Stanley I. Glickman. 46: 664–667, June 1947.

J. OKLAHOMA M. A., OKLAHOMA CITY

Common fungous infections. (Differentiation from syphilis.) A. Brooks Abshier. 40: 334–337, Aug. 1947.

J. SOCIAL HYG., NEW YORK

Marriage and divorce in the United States today. Proceedings of a session on this subject during the New York Regional Social Hygiene Conference on Feb. 5, 1947, including a panel discussion on the topic. 33: 146–172, Apr. 1947.

New York: Increase in venereal disease infections in males in New York City. 33: 181–182, Apr. 1947.

With the State legislatures. Notes on laws and their administration. George Gould. 33: 189–192, Apr. 1947.

Highlights of the history of syphilis. Paul Le Van. 33: 249–254, June 1947.

Essentials in the VD control program. Eugene A. Gillis. 33: 255–258, June 1947.

U. S. War Department venereal disease c
trol program. Louis N. Altshuler.
259–271, June 1947.

Venereal disease control in the Uni
States Navy. George W. Mast. 33: 27
278, June 1947.

J. TROP. MED., LONDON

Hepatic bilharziasis. (Differentiation fr
syphilis of the liver.) M. Erfan. 5
104–109, June 1947.

KENTUCKY M. J., BOWLING GREEN

The rheumatic diseases. Diagnostic aspec
Gordon S. Buttorff. 45: 242–246, Ju
1947.

Therapeutic considerations of the rheuma
diseases. A. Clayton McCarty. 45: 24
251, July 1947.

M. REC., KUTZTOWN

International Union Against Venereal D
eases. News Items. 160: 431, Ju
1947.

Evidence of venereal disease among Br
ish troops. Letter from Britain. 16
433, July 1947.

MEMPHIS M. J., MEMPHIS

Fatal syphilitic aortic insufficiency in
19-year-old colored female. I. Frank T
lis, Jr. 22: 130–131, Aug. 1947.

MONTHLY BULL., INDIANA STATE BD.
HEALTH, INDIANAPOLIS

Richmond Public Health Nursing Assoc
tion (Including v. d.). Marion M. Wet
50: 135, 146–147, June 1947.

NEDERL. TIJDSCHR. V. GENEESK., AMST
DAM

Gonorrheal peritonitis. L. W. van Rav
teyn. 91: 808, Apr. 5, 1947. (
stracted in J. A. M. A., Chicago, 13
1206, Aug. 2, 1947.)

NEW ENGLAND J. MED., BOSTON

Gynecology in the community. (Includ
g. c.) Lewis C. Scheffey. 237: 250–2
Aug. 21, 1947.

OHIO STATE M. J., COLUMBUS

Streptomycin: clinical results in 37 cas
Robert F. Parker, Betty Gilson and Jar
J. Joelson. 43: 734–735, July 1947.

PEDIATRIYA, MOSCOW

Treatment of chemoresistant gonorrhea
children. Antireticular cytotoxic seru
(Preliminary communication.) S.
Kaufman. 5: 15–19, 1945.

PENNSYLVANIA M. J., HARRISBURG

Priapism. Report of three cases. Fran
G. Harrison. 50: 1074–1077, July 19

Darkfield facilities and their utilization
the State of Pennsylvania. 50: 10
1086, July 1947.

Penicillin treatment of the syphilitic pregnant woman. Venereal disease notes. 50: 1086, July 1947.

B. HEALTH NEWS, TRENTON

Report of activities—Negro health program May 1, 1940 to June 30, 1947. Walter G. Alexander. 28: 339–340, Aug. 1947.

B. HEALTH NURSING, NEW YORK

Slossfield chalks up progress. Alma Vessells. 38: 490–491, Sept. 1946.

The new Eight Point Agreement of 1946. 38: 537, Oct. 1946.

Ten years of accomplishment in VD control. News and Views. 39: 116, Feb. 1947.

B. HEALTH REP., WASHINGTON

*Comparison of the spirocheticidal activity of arsphenamines and phenarsines (arsenoxides) in experimental syphilis. T. F. Probey. 62: 1041–1048, July 18, 1947.

*Loss of virulence of Treponema pallidum during processing of dried blood serum. T. F. Probey. 62: 1199–1202, Aug. 15, 1947.

Comparison of the spirocheticidal ac- ity of arsphenamines and phenarsines rsenoxides) in experimental syphilis. F. Probey. Pub. Health Rep., 62: 41–1048, 1947.

The author calls attention to his pre- ous report on the therapeutic activity the arsphenamines, concerned entirely ith neoarsphenamine, which demon- rated that two brands of neoarsphena- ine varying in trypanocidal activity re remarkably uniform in spirochetici- l activity in experimental syphilis in bbits and were equally effective in the utine therapy of syphilis in man.

In his review of the literature he states at apparently there is still disagree- ent on the relative merits of the ars- enamines and the phenarsines in cur- g experimental syphilis in rabbits; and at considerable opinion is to the effect at arsenoxide is approximately 5 times effective as neoarsphenamine or sulf- sphenamine. However, he notes that senoxide has been demonstrated by actically every investigation to be many mes more toxic than the arsphenamines. n the basis of the toxicity requirements r the control of the trivalent organic senicals, the author states that the ar- noxides, dichlorophenarsine and oxo- enarsine, are at least 16 times more toxic than neoarsphenamine and sulfarsphenamine.

The author's summary states that different brands of sulfarsphenamine, dichlorophenarsine hydrochloride, oxophenarsine hydrochloride, and neoarsphenamine, as previously reported, each within their respective categories, are uniformly active in curing experimental syphilis in rabbits with one treatment late in the active stage of the disease.

Sulfarsphenamine has greater spirocheticidal activity than neoarsphenamine, and the two phenarsine products, of approximately equal efficiency, are more active therapeutically than the two arsphenamines.

The chemotherapeutic ratio, minimal lethal dose: minimal effective dose, for the phenarsines, indicating little, if any, margin of safety, is definitely inferior to that for the arsphenamines.

The spirocheticidal activity of the trivalent organic arsenicals depends on the arsenoxide, or therapeutically active arsenic, being available in sufficient concentration for a sufficient length of time to sterilize the infected animal, irrespective of the type of arsenical used.

Loss of virulence of Treponema pallidum during processing of dried blood serum. T. F. Probey. Pub. Health Rep., 62: 1199–1202, 1947.

The author reports on the efficacy of safeguards to prevent the transmission of syphilis by blood transfusion. After reviewing the observations of others and describing his own experiments, he finds himself in accord with clinical experience which has shown that syphilis is not transmitted by blood or its derivatives which have been processed.

The experimental procedure followed by the author and the results of the animal virulence tests are detailed in text and tabular form. The animal experiments were done in three stages, with three rabbits in each group. Two groups were inoculated with dried material, while the control group received an unprocessed suspension of spirochetes. Each rabbit was inoculated with approximately 0.5 ml. of the test material in each testicle. The infectivity of the Treponema-saline-horse-serum suspension was established by the control group. The three inoculated rabbits developed darkfield positive syphilitic lesions within 42 days. None of the rabbits inoculated with restored processed material developed evidence of syphilis during the observation period of approximately 140 days.

The author's conclusions are: (1) Treponema pallidum suspended in saline-blood-serum becomes avirulent and is apparently killed during the deep-freezing and drying process; (2) rabbits inoculated with restored dried material failed to develop evidence of syphilitic infection during approximately 140 days' observation; three successive subtransfers, observed for 13, 7, and 9 months, respectively, also remaining negative; and (3) the danger of transfusion syphilis appears to be eliminated with the use of processed (frozen and dried) human plasma or of serum containing not more than 1 percent of moisture.

Quart. Bull. Dept. of Health, New York, N. Y.
- Volunteer lecturers. 15: 23, June 1947.
- Venereal disease research unit. 15: 25–29, June 1947.

Rocky Mountain M. J., Denver
- Penicillin in venereal disease. Grace E. Field. 44: 619–621, Aug. 1947.

Sight-Saving Rev., New York
- Relation of syphilis to blindness. Martin J. Cook. 17: 10–15, Spring 1947.
- Sulfa therapy in eye infections. Fred Loe. 17: 16–25, Spring 1947.

South African M. J., Cape Town
- Chemotherapy. I. Sulphonamides. II. Penicillin. III. Other Antibiotics. (In v. d.) Vernon Brink. 21: 91–96, Feb. 8, 1947; 125–131, Feb. 22, 1947.
- Penicillin and syphilis. New therapeutics in America. 21: 135, Feb. 22, 1947.

South Dakota Health Highlights, Pierre
- Laboratory rating satisfactory again. 5: 5, June 1947.

South. M. J., Birmingham
- *Quantitative serologic tests for syphilis. Use and availability in venereal disease control. Virgil Scott and E. Gurney Clark. 40: 685–697, Aug. 1947.

Quantitative serologic tests for sy ilis. Use and availability in venereal d ease control. Virgil Scott and E. Gurr Clark. South. M. J., 40: 685–697, 19

Although, since their introduction 1909, facilities for the quantitative es mation of syphilitic "reagin" in the ser have become almost universally availab the authors believe that full use is r being made of these resources. It is co sidered desirable to reemphasize the u fulness and limitations of such tests the diagnosis and treatment of patie with syphilis and their value in control the disease.

These procedures, the authors state, a of value particularly with reference (1) the serologic diagnosis of congeni syphilis; (2) the differentiation of po tive diagnosis of serum tests due to syp ilitic infection from biologic false po tive reactions; (3) the diagnosis of da field negative primary syphilis; and (the serologic follow-up of patients w early syphilis treated by intens methods.

Various tests and their respective s nificance are discussed and described text and by line graphs. These inclu (1) the relation of the reagin titer duration of early lesions in males; (the serologic trends in infants born syphilitic mothers; (3) the biologic fa positive reaction in diseases such as inf tious mononucleosis; (4) the serologic sponse following penicillin therapy (million units in 4 days) for seconda syphilis; and (5) the serologic respon following penicillin therapy (1.2 milli units in 4 days) for secondary syphi with serologic relapse followed by inf tious relapse successfully re-treated w penicillin (2.4 million units in 8 days)

Texas State J. Med., Fort Worth
- Clinical indications for streptomycin ba on U. S. Army experiences. Edwin Pulaski. 43: 174–178, July 1947.
- Radiologic diagnosis of lesions of the la bowel. (Including infections of lymp granuloma venereum and syphilis.) J. Maxfield, Jr. 43: 276–279, Aug. 1947

Virginia M. Monthly, Richmond
- The treatment of syphilis. Raymond K brough. 74: 321–322, July 1947.

CURRENT NOTES AND REPORTS

ecent Statements Regarding Increases in Syphilis Rate Reported in the United States

n recent months articles and editorials various publications have stated that syphilis rate in the United States has reased alarmingly since the end of the r. These statements presumably are sed on the number of cases of early philis reported among civilians rather n on rates calculated for the whole pulation of the United States. When es are calculated for the combined ilian-armed-forces population of the ited States, a gradual increase is seen the rate of primary and secondary philis reported from 1941 to 1946 with leveling-off in 1947. (See table.) The increased rate of primary and secondary syphilis reported for civilians only in 1946 and 1947 was undoubtedly due to the return to civilian life of millions of young adult males in the age group in which new syphilis infections occur frequently.

Along with the steady increase in the rate of primary and secondary syphilis cases reported for civilians, there has been a steady decrease in the congenital and late syphilis rates. The total syphilis reported rate has shown a continuous decline since 1943.

end of syphilis morbidity reporting, United States civilian and armed forces, 1941–47

iscal year	Estimated population in thousands[1]	Reported cases					Rate per 1,000 population				
		Total, including stage not stated	Primary or secondary	All early syphilis (primary, secondary, early latent)	Congenital	Late and late latent	Total, including stage not stated	Primary or secondary	All early syphilis (primary, secondary, early latent)	Congenital	Late and late latent
	Continental United States civilians										
41	131,897	477,841	67,958	176,616	17,592	201,190	3.623	0.515	1.339	0.133	1.525
42	131,943	472,245	75,704	192,137	16,924	202,216	3.579	.574	1.456	.128	1.533
43	128,728	564,918	82,230	231,139	16,173	252,995	4.388	.639	1.796	.126	1.965
44	127,028	458,199	78,418	200,808	13,576	203,396	3.607	.617	1.581	.107	1.601
45	127,037	356,315	77,007	178,142	12,339	142,731	2.805	.606	1.402	.097	1.124
46	133,543	360,918	94,957	202,293	12,106	125,836	2.703	.711	1.515	.091	.942
47	140,974	373,296	106,594	214,349	12,284	122,257	2.648	.756	1.520	.087	.867
	Total civilian and armed forces										
41	132.638	484,647	74,764	183,422	17,592	201,190	3.654	0.564	1.383	0.133	1.517
42	133,953	486,386	89,845	206,278	16,924	202,216	3.631	.671	1.540	.126	1.510
43	135,646	594,021	111,333	260,242	16,173	252,995	4.379	.821	1.919	.119	1.865
44	137,368	501,947	122,166	244,556	13,576	203,396	3.654	.889	1.780	.099	1.481
45	138,923	411,840	132,532	233,667	12,339	142,731	2.965	.954	1.682	.089	1.027
46	140,387	409,531	143,570	250,906	12,106	125,836	2.917	1.023	1.787	.086	.896
47	142,673	399,067	132,365	240,120	12,284	122,257	2.797	.928	1.683	.086	.857

[1] As of January 1 (mid-point of fiscal year).

Source: Civilian Morbidity, U. S. Public Health Service, Form 8958–B. Army Morbidity: U. S. Army. avy Morbidity: Statistics of Navy Medicine (provisional data). Population, Bureau of the Census, P-46, o. 6.

USPHS, Office of Statistics, October 10, 1947 (HAK).

Voluntary Reporting for Examination

Approximately 50 percent of the primary and secondary syphilis cases reported by clinics are persons who go to the clinics of their own accord because they have learned enough about symptoms to suspect that they are infected. The actual number of persons voluntarily seeking diagnosis can be increased. In order to raise this figure materially it would be useful to secure the following information:

How people get the facts which lead them to recognize symptoms and to identify themselves as possibly infected.

What motivates or causes these people to overcome reluctance to report for examination and to seek diagnosis voluntarily.

How they know where to go for diagnosis.

This basic information can be obtained by asking a few carefully worded questions of those persons now coming to diagnosis of their own accord and by questioning those who did not come of their own accord but were found by contact investigation or through premarital, prenatal, industrial, or other required tests. A study of the responses will help to termine those factors which motivate p sons to seek diagnosis and to provide basis for modification of education methods to improve case finding.

Such an investigation is now being co ducted in a number of areas through u of research questionnaires scientifical prepared for patients in clinics and rap treatment centers. Among other ite patients are asked which of a number factors made them hesitate about comi in for diagnosis—waiting at the clin naming sex partners, fearing treatme or hospitalization, handling of patients the clinic, and other factors. Patien are also asked through which media th learned about venereal disease befo coming to the clinic—washroom sig pamphlets, radio, newspapers, movie posters, sex books, and other such medi

Health officers interested in partic pating in this study may obtain sampl of the questionnaires and instructions their use by writing to the Venereal Di ease Division, United States Publ Health Service, Washington 25, D. C.

Results of Intensive Contact Interviewing

Interviewers at three rapid treatment centers, with the help of local follow-up workers, are showing what can be accomplished by intensive contact interviewing, accompanied by prompt and thorough investigation. At the Alto (Georgia) center, an average of over 4 contacts is obtained per case of primary and secondary syphilis. The investigation of these contacts is resulting in an average of 1.3 cases of syphilis identifie per case interviewed. At the Birmin ham (Alabama) rapid treatment cente an average of 3.23 contacts is obtaine and the investigation results in the ide tification of 0.93 cases per case inte viewed. At Hot Springs, Ark., an ave age of 3.4 contacts is obtained, resultin in the identification of 1.35 cases pe case interviewed.

A recent report from a special study area in Virginia, consisting of a large city and three rural counties, gives an indication of what can be accomplished by intensifying the contact investigation process, even without the employment additional personnel. This area su ceeded in identifying through contact i vestigation 85 cases of syphilis for eac 100 cases of primary and secondary syp

diagnosed. For each 100 cases of
nary and secondary syphilis diag-
ed, 39 new cases of syphilis, previously
nown to any treatment source, were
ught to treatment. This was accom-
shed by obtaining an average of 2.09
tacts per patient diagnosed, and lo-
ing 66 percent of the contacts named.

In a study of a portion of the records covered by this report, it was found that the average number of contacts obtained from colored male patients was slightly higher than from female patients, but this difference was not statistically significant.

STATISTICS

st Admissions to Mental Hospitals for All Psychoses and for Psychoses Due to Syphilis, United States, 1910, 1922, 1933–45

Year	Number of first admissions				Percent of all psychoses due to syphilis	Rates per 100,000 population			
	All psychoses	Paresis	Other syphilis of the central nervous system	Total psychoses due to syphilis		All psychoses	Paresis	Other syphilis of the central nervous system	Total psychoses due to syphilis
	60, 769	3, 884	--------	--------	--------	65. 8	4. 2	--------	--------
	66, 836	6, 294	893	7, 187	10. 8	60. 7	5. 7	0. 8	6. 5
	82, 439	7, 166	1, 477	8, 643	10. 5	65. 6	5. 7	1. 2	6. 9
	82, 475	7, 294	1, 519	8, 813	10. 7	65. 3	5. 8	1. 2	7. 0
	86, 061	7, 402	1, 482	8, 884	10. 3	67. 6	5. 8	1. 2	7. 0
	90, 880	7, 551	1, 483	9, 034	9. 9	71. 0	5. 9	1. 2	7. 1
	93, 236	7, 517	1, 629	9, 146	9. 8	72. 4	5. 8	1. 3	7. 1
	93, 541	7. 827	1, 497	9, 324	10. 0	72. 0	6. 0	1. 2	7. 2
	93, 357	7, 998	1, 533	9, 531	10. 2	71. 3	6. 1	1. 2	7. 3
	90, 940	7, 196	1, 235	8, 431	9. 3	68. 5	5. 4	. 9	6. 3
	97, 288	7, 501	1, 262	8, 763	9. 0	72. 6	5. 6	. 9	6. 5
	98, 424	7, 281	1, 295	8, 576	8. 7	73. 1	5. 4	1. 0	6. 4
	102, 104	6, 751	1, 246	7, 997	7. 8	76. 2	5. 0	. 9	6. 0
	111, 325	6, 605	1, 122	7, 727	6. 9	84. 0	5. 0	. 8	5. 8
	114, 535	6, 496	1, 080	7, 576	6. 6	86. 8	4. 9	. 8	5. 7

ource: Census Bureau—Patients in Mental Hospitals.

SPHS—Venereal Disease Division, Office of Statistics, Aug. 28, 1947 (JHG).

DOCUMENTS SECTION

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United States Public Health Service

9

FEDERAL SECURITY AGENCY

UNITED STATES PUBLIC HEALTH SERVICE

THOMAS PARRAN, *Surgeon General*

Editor: J. R. HELLER, Jr., *Medical Director*
Chief, Venereal Disease Division

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Attempted Immunization of Rabbits Against Syphilis With Killed Treponema Pallidum and Adjuvants[1]

Harold J. Magnuson, M. D.; Seymour P. Halbert, M. D.; and
Barbara J. Rosenau, M. S. P. H.[2]

Although most experimental evidence ndicates that a true immunity develops during the course of syphilitic infection (*1*), attempts to produce this immunity by artificial means have been uniformly unsuccessful (*2, 3, 4*). Since Freund and his co-workers (*5, 6*) induced immunity to malaria only, with a mineral oil emulsion type of adjuvant, it seemed worth while to apply this technic to rabbit syphilis. The present report reveals that although the adjuvants did not produce a clinical immunity, many of the animals did develop positive serologic tests for syphilis.

Methods and Materials

Because acquired immunity develops slowly during infection, it was felt that the interval between the first injection of antigen and the challenging infection should at least equal the time required for the natural infection to produce immunity. Second, it seemed advisable to kill the antigenic spirochetes by a method which would denature the protein as little as possible, presumably permitting them to maintain a more normal antigenic structure. Third, since immunity in the acquired infection is a relative one (*7*), it was felt that the inoculum used to challenge the immunity should be sufficiently small to detect the smallest degrees of such resistance.

Preparation of Antigen

Acute rabbit testicular syphilomas were removed at the height of the inflammatory reaction, 14 to 17 days after inoculation with 10^7 organisms into each testis. The testes were finely minced, and ground in a mortar with 4 cc. per testis of 50-percent normal rabbit serum in isotonic salt solution. The resultant emulsion was centrifuged to remove tissue particles, the supernatant fluid removed, and the number of spirochetes in the emulsion determined by direct enumeration (*8*). When the antigen was to be used without adjuvants, 10 cc. of the emulsion was immediately transferred to 20-cc. lyophil vials, frozen at —80° C., and lyophilized (*9*). The lyophilized spirochetes were sealed under vacuum and kept at −20° C. until used. For use, the antigen was redissolved in an amount of distilled water equal to that removed during lyophilization. The final antigen contained 10^8 Treponema pallidum per cubic centimeter.

For the experiments in which adjuvants were added, the emulsions were lyophilized in two 100-cc. lots. These lots were redissolved in a total of 25 cc. of distilled water and slowly mixed with 25 cc. of Falba.[3] Meanwhile 300 mg. of dried Mycobacterium phlei were suspended in 100 cc. of mineral oil (Atreol No. 9). The mineral oil containing the M. phlei was then slowly added to the mixture of Falba and spirochetes, forming a stable emulsion, which was kept at 10° C. until used. This technic is essentially the same as that described by Freund

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[1] From the Reynolds Research Laboratory, School of Public Health, University of North Carolina, Chapel Hill, N. C. This work was aided in part by funds granted the University of North Carolina by the U. S. Public Health Service.

[2] With the technical assistance of John W. Clark, Jr.

[3] A detailed description of the mineral oil, the lanolin derivative, Falba, and the M. phlei used here are presented in (*10*).

et al. (*5, 6*). Each cubic centimeter of this antigen contained approximately 8 x 10^7 T. pallidum and 2 mg. of dried M. phlei.

Immunization Procedure

One group of animals received injections of lyophilized spirochetes alone, without adjuvants. Subcutaneous injections of 1 cc. of antigen were made at weekly intervals to a total of either 6 or 8 injections, as indicated in table 1. Each animal thus received a total dose of 600 to 800 million spirochetes.

In the animals given the antigen with adjuvants, injections were begun subcutaneously at weekly intervals. However, by the fifth injection some of the animals had developed large subcutaneous nodules at the site of previous injections. Some of these nodules went on to ulceration, with a resultant loss of unknown amounts of antigen. Because of this, subsequent injections were given intramuscularly. The theoretical total dosage was, therefore, about 280 million spirochetes per animal. Blood for cardiolipin flocculation tests was obtained from the ear veins at the start of the experiment and weekly thereafter (*11*). All animals had negative serologic tests at the start of the experiment.

To demonstrate the noninfectiousness of the antigen, the left popliteal nodes of some of the animals were removed after completion of the antigen injections, emulsified in 1 cc. of 50-percent serum-saline and inoculated intratesticularly into a second rabbit. As is shown in table 2, all of these node transfers were negative.

TABLE 1.—*Attempted immunization of rabbits with lyophilized Treponema pallidum*

[Rabbits received weekly subcutaneous injections of 1 cc. of lyophilized T. pallidum antigen containing 100,000,000 spirochetes per cubic centimeter. The results of the challenging inoculation are shown either as the incubation period in days for the positive sites, or as "0" if no lesion developed.]

Rabbit No.	Number of injections	Duration (weeks)	Interval between injection and challenge (weeks)	Maximum STS [1] titer prior to challenge	Results of challenging infection [2]					
					10^6	10^5	10^4	10^3	10^2	10
221	6	6	12	Negative					27	
223	6	6	12	do						0
224	6	6	12	do		14				
225	6	6	12	do				21		
226	6	6	12	do						27
227	6	6	12	do		14				
228	6	6	12	do				21		
229	6	6	12	do						24
230	6	6	12	do		14				
231	6	6	12	do				24		
138	8	8	12	6	11	15	15	22	22	22
139	8	8	12	4	11	15	18	22	0	25
173	8	8	12		11	15	22	22	32	29
174	8	8	12		11	15	18	25	25	22
176	8	8	14	3	9					
177	8	8	14	4		14				
186	8	8	14	1			14			
194	8	8	14	Negative				21		
Controls:										
279					22	67	36	0	36	67
280					22	0	25	0	56	37
284					11	15	18	22	25	25
Average of normal rabbits [3]					14	17	26	27	32	35

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[1] Serologic test for syphilis.

[2] Column headings indicate the number of spirochetes per cubic centimeter in the emulsion dilution used for inoculation. The actual inoculum was one-fifth of this amount.

[3] See reference (*8*).

TABLE 2.—*Attempted immunization of rabbits with lyophilized Treponema pallidum plus adjuvants*

[Rabbits received weekly subcutaneous (see text) injections of ½ cc. of lyophilized T. pallidum plus adjuvants containing 8 x 10^7 T. pallidum and 2 mg. Mycobacterium phlei per cubic centimeter in a Falba-mineral-oil-water emulsion. The results of the challenging inoculation are shown either as the incubation period in days for the positive sites, or as "0" if no lesion developed.]

Rabbit No.	Number of injections	Duration (weeks)	Interval between injection and challenge (weeks)	Maximum STS [1] titer prior to challenge	Results of challenging infection [2]						Previous [3] to node transfer
					10^6	10^5	10^4	10^3	10^2	10	
859	7	9	11	2	8	9	14	18	27	27	
860	7	9	11	2	7	14	0	0	27	27	
861	7	9	11	6	19	14	19	19	24	27	
863	7	9	11	16	------	------	------	27	27	0	
864	7	9	11	8	------	------	------	27	27	0	
865	7	9	11	1	------	------	------	36	36	0	
849	7	9	16	32	------	------	------	35	25	37	
857	7	9	16	12	------	------	------	17	28	25	
866	7	9	16	2	------	------	------	17	17	22	Negative
867	7	9	16	4	------	------	------	17	20	20	
868	7	9	16	½	------	------	------	17	20	26	Do.
869	7	9	16	3	------	------	------	25	31	20	Do.
870	7	9	16	16	------	------	------	20	20	20	Do.
871	7	9	16	8	------	------	------	22	17	22	Do.
872	7	9	16	4	------	------	------	20	25	31	
873	7	9	16	2	------	------	------	17	20	17	
874	7	9	16	2	------	------	------	17	25	31	Do.
875	7	9	16	6	------	------	------	22	20	0	
877	7	9	16	Negative	------	------	------	20	25	0	
Controls:											
1141					9	14	14	16	24	27	
1115					------	------	------	22	22	25	
1136					9	33	19	24	41	41	
1140					16	------	------	------	------	16	
1181					------	------	------	15	20	32	
Average of normal rabbits [4]					14	17	26	27	32	35	

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[1] Serologic test for syphilis.

[2] Column headings indicate the number of spirochetes per cubic centimeter in the emulsion dilution used for inoculation. The actual inoculum was one-fifth of this amount.

[3] Result of node transfer at completion antigen injections and prior to challenging infection.

[4] See reference (*8*).

Challenging Infection

The times at which challenging infections were made are indicated in tables 1 and 2. The emulsions for quantitative inoculation were prepared by the method previously described (*8*). The emulsions were diluted in 50-percent serum-saline in such manner that the required number of organisms was contained in 0.2 cc., which was then inoculated intracutaneously on the back at one or more sites as is indicated in the tables. For the first 2 weeks the inoculated sites were examined daily and thereafter twice weekly. Any lesions developing at the site of inoculation were incised for darkfield examination. To check the potency of the challenging inoculum, normal rabbits were simultaneously inoculated intracutaneously at multiple sites and observed in the same manner.

Results

The results following attempted immunization with the lyophilized spirochetes *alone* are summarized in table 1. As is there shown, approximately half of the animals received six weekly injections of 100,000,000 spirochetes and were then allowed to go for another 6 weeks before challenge. None of these 10 animals developed a positive serologic test for syphilis. Six weeks after the last injection they were challenged by a single inoculation intracutaneously, the inoculum varying from 2 to 20,000 organisms.

At all of these inoculated sites syphilitic lesions promptly developed, with the exception of 1 of 3 sites which received 2 organisms. As has been shown in a previous paper (*8*) and in the controls, these results are identical with those observed in normal rabbits. It may be noted that the time required to develop a darkfield positive lesion varied with the size of the inoculum, and that the observed incubation periods are within the limits previously found in normal animals for similar inoculums. In the other 2 groups of animals, 8 inoculations of antigen were given over an 8-week period. In 4 of the animals, 4 weeks elapsed between the last injection of antigen and the challenge, and in the other 4 animals, 6 weeks elapsed following the last inoculation. The majority of these animals developed positive serologic tests for syphilis, but as in the first group there was no evidence of immunity on inoculation.

The animals that received the lyophilized spirochetes plus adjuvants are divided into 2 groups, both of which received a total of 7 injections of ½ cc. of antigen over a period of 10 weeks. In the first group, 2 weeks elapsed between the final injection of antigen and challenge, while in the second group, 7 weeks elapsed. Nearly all of these animals developed a positive cardiolipin flocculation test, some of them in titers as high as 16 to 32 dilution units. The challenging infection in both series was accomplished by multiple intracutaneous inoculation at from 3 to 6 sites on each animal. To test for smaller degrees of immunity, the majority of these animals received at three different sites inoculations of 200, 20, and 2 organisms respectively. The total inoculum thus amounted to 222 organisms. As in the first series, none of these rabbits showed any evidence of immunity. All of the sites became positive in the proportion one would expect in normal animals, and the incubation period as observed was the same as found in normal animals. We may thus conclude that there was no evidence of immunity in these rabbits.

Comments

Although the failure to produce even minimal immunity in these animals was disappointing, certain features of the experiment merit comment. The failure of the antigen itself to produce infection confirms the findings of Turner (*12*), that T. pallidum are killed by the freeze-drying process. We may also be sure that the present experiments failed to produce even minimal degrees of immunity, since minimal infectious inoculums for normal animals sufficed to produce infection in the "immunized" rabbits.

Most interesting is the development of a positive serologic test for syphilis following repeated injection of killed spirochetes. This was especially evident in the experiment in which the spirochetes were combined with adjuvants. It has been shown by Eagle (*13*) that strongly positive serologic tests for syphilis may be induced in normal rabbits by the injection of lipoid reagin complexes. Here, however, we have the development of an antibody to tissue lipoids. Such evidence does not resolve the question as to whether the development of positive serologic tests in the course of human syphilis arises as a result of antibodies to tissue lipoids (*12*), or whether reagin is elaborated as an antibody to T. pallidum. The data presently reported would support the latter possibility, and that at least in the experimental animal the injection of T. pallidum under suitable conditions may be followed by the development of reagin.

That such reagin is not effective in protecting animals against syphilitic infection has, of course, been shown by several investigators, and though the reagin in these experiments developed as a response to T. pallidum, there has again been no indication that the reagin conferred any degree of immunity against the experimental disease.

Conclusions

1. The repeated subcutaneous injection of either lyophilized spirochetes or lyo-

philized spirochetes plus M. phlei in an oil emulsion failed to protect rabbits against minimal infectious inoculums of T. pallidum.

2. The injection of these antigens did produce positive serologic tests for syphilis in the same animals.

References

1. Chesney, A. M.: Immunity in syphilis. Medicine, 5: 463–547, 1926.
2. Kolmer, J. A.; Rule, A.: The failure of vaccination of rabbits against syphilis with a note on the selective localization of Spirocheta pallida. Am. J. Syph., Gonor. & Ven. Dis., 14: 236–240, 1930.
3. Wakerlin, G. E.: Attempted immunization of rabbits against experimental syphilis. Arch. Dermat. & Syph., 28: 843–846, 1933.
4. Stratton, E. K.: The effect of immunization with extracts of syphilitic tissue on the course of experimental syphilis in rabbits. Am. J. Syph., Gonor. & Ven. Dis., 26: 227–230, 1942.
5. Freund, J.; Sommer, H. E.; Walter, A. W.: Immunization against malaria; vaccination of ducks with killed parasites incorporated with adjuvants. Science, 102: 200–202, 1945.
6. Freund, J.; Thomson, K. J.; Sommer, H. E.; Walter, A. W.; Schenkein, E. L.: Immunization of Rhesus monkeys against malarial infection (P. knowlesi) with killed parasites and adjuvants. Science, 102: 202–204, 1945.
7. Magnuson, H. J.; Rosenau, B. J.; Clark, J. W., Jr.: The rate of development and degree of acquired immunity in experimental rabbit syphilis. (In preparation).
8. Magnuson, H. J.; Eagle, H.; Fleischman, R.: The minimal infectious inoculum of S. pallida (Nichols strain), and a consideration of its rate of multiplication in vivo. Am. J. Syph., Gonor. & Ven. Dis. (in press).
9. Flosdorf, E. W.; Mudd, S.: Procedure and apparatus for the preservation in "lyophile" form of serum and other biological substances. J. Immunol., 29: 389–425, 1935.
10. Halbert, S. P.; Mudd, S.; Smolens, J.: The increased antigenicity of Shigella paradysenteriae (Flexner) in saline-in-mineral-oil emulsion. J. Immunol., 53: 291–301, 1946.
11. Harris, A.; Rosenberg, A. A.; Riedel, L. M.: A microflocculation test for syphilis using cardiolipin antigen. Preliminary report. J. Ven. Dis. Inform., 27: 169–174, 1946.
12. Turner, T. B.; Bauer, J. H.; Kluth, F. C.: Viability of spirochetes of syphilis and yaws in desiccated blood serum. Am. J. M. Sc., 202: 416–423, 1941.
13. Eagle, H.: Studies in the serology of syphilis; VI. The induction of antibodies to tissue lipoids (a positive Wassermann reaction) in normal rabbits. J. Exper. Med., 55: 667–681, 1932.

The Contribution of the Nurse in the Schools to Venereal Disease Control[1]

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Syphilis and gonorrhea remain major communicable disease problems in the United States. Every worker in every professional public health category has a responsibility to give his or her utmost to the eradication of these diseases. The nurse working in the school is in an enviable position because she is dealing with those who will be the future leaders of our country.

The well-qualified public health nurse in the school, through her work with school children, parents, and teachers, can participate in the venereal disease control program by (1) assisting in case finding through her knowledge of symptoms and epidemiology; (2) teaching and setting a standard of good health in the schools; (3) assisting the schools in an over-all program for the prevention of venereal disease through sex or social hygiene education; (4) recommending reading material for parents, teachers, and students in this field and assisting in interpreting the vocabulary of such books; (5) acting as an ambassador of understanding in the school and in the home.

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[1] From the Institute for the Study of Venereal Disease, University of Pennsylvania, Philadelphia. Director: John H. Stokes, M. D.

Note: This paper is sixth in a series of articles concerned with the contribution of the public health nurse to the venereal disease control program. The series is published in the *Journal of Venereal Disease Information*. (See Special Nursing Issue, November 1946, and April 1947.)

In order to assist properly with the venereal disease problem, the nurse should have a well-rounded medical background in the various venereal diseases, including an understanding of symptoms, the recent changes in treatment, and the normal growth and development of children in relation to physical, endocrine, and psychological changes. The knowledge and special training in the epidemiology of the venereal diseases can be secured in courses offered at various universities in the country, if the nurse has not had such courses in her basic training. She should also include in her educational experience a course similar to the one given in health and human relations at the Institute for the Study of Venereal Diseases, University of Pennsylvania, which is planned for teachers, nurses, social workers, and others concerned with educational programs in the schools, churches, and community. She should keep herself posted on the new textbooks which are published in these fields, and on the current articles in medical and nursing journals.

Role of the School in the Prevention of Venereal Disease

Through years of experience, physicians and public health administrators have learned that a long-time objective in venereal disease control and prevention should include sex education as well as venereal disease education. Progressive educators also recognize that if their goal of "educating the whole child" is to be reached they must include sex education as one of the child's needs.

Dr. John H. Stokes (*1*) states that the basis for a sex education program is laid in the home and that an essential part of this information should be given to the child by the parent. He says, "The family is the key social unit ideal in the history of man thus far. The farther we take sex practice from it as the ideal, the more basically we change all human relations and social organization." Many parents need to be made aware of the fact that learning about sex is gradual and begins almost at birth, and continues throughout the child's life.

Studies show that in order for parents to give proper guidance to this learning process in children they need to have more information regarding the physiology and normal growth processes of the body; a suitable vocabulary and the ability to use it without hesitance or embarrassment; a knowledge of the psychological viewpoint that deals with sex behavior; and adequate information regarding the venereal diseases.

The school, through the Parent-Teachers' Association, can stimulate and reenforce the knowledge of the parents through the organization of study groups to discuss the various sex problems found in both the preschool and school child. By this method the faculty will gain the support and cooperation of the parents in handling this very important part of every child's education.

The school should use this opportunity to show how it can supplement the parents' teaching by integration of information regarding the reproductive processes in the sciences that aid in promoting knowledge of the other physiological processes and of family relationships. As very young children are full of questions and are not yet self-conscious, this teaching is preferably done in mixed groups. In the junior high schools most boys and girls are at the "giggly" stage and are having normal emotional problems, so that their groups are usually segregated. This can be done by having teen-age clubs, or through the natural division of the sexes in such classes as physical education and home economics. Most authorities believe that in senior high school there is need for another course, preferably in a mixed group. The schools most successful in this field have avoided labeling this course with the word "sex," and have found that a title such as "Education for Family Living" approaches the subject from a broader base and one in which the emotions do not play so important a part. With this or a similar title, sex information can assume its place as only one of the problems of living and growing up.

The school nurse's contribution in such a program, if her training has been adequate, is that as a member of the school planning committee she can act as a liaison between parents, community, and school. She can act as a consultant to groups of students, teachers, and parents; and can discuss the problems of venereal disease, menstruation, and baby care. By conferring with these groups she can assist them in the solution of individual problems. Through individual conferences with children the school nurse can evaluate their problems and suggest teaching content and materials for the courses given in the school curriculum.

Venereal Disease Problems in Schools

Congenital or acquired infectious syphilis and gonorrhea may be encountered in the school child. The nurse familiar with the symptoms and complications of the venereal diseases will recognize the need for immediate referral for medical care. In congenital syphilis the complications of interstitial keratitis, bone and joint involvement, eighth nerve deafness, and juvenile paresis present problems of great importance in the child of school age. Stokes (2) emphasizes that in the congenital syphilitic a loss in the mental activity or energy of the child is frequently an initial sign of neurosyphilis. Another type of mental disturbance associated with juvenile paresis, that of the unruly or wild child who is difficult to manage and at times distinctly inclined toward outright delinquency, may be observed by the nurse. Spinal fluid examinations are indicated in both of these types of cases. The congenital syphilitic, particularly the adolescent, often presents social and emotional problems as a result of learning the diagnosis. If the nurse is cognizant of this problem she can arrange for the family to be referred to a social case-work agency or to a child guidance clinic for help. The follow-up of the treatment of syphilis is a problem in which the nurse can be helpful in directing the child to the clinic for these examinations. In helping the child, the nurse, of course, works through the parents in cases requiring medical care and assistance from welfare agencies.

The following is an example of some of the problems a congenital syphilitic child can present in school:

John, aged 14 years, white, was in seventh grade, and was observed by the teacher to have a severely inflamed eye, burning and watery discharge, blurred vision, and inability to read. The teacher had heard that the family had syphilis, and she was concerned about possible infection of others in the class. She went to the school nurse, who had a long conference with the teacher and explained, among other things, the noninfectiousness of late congenital syphilis. Later, arrangements were made for the school nurse to discuss this same problem with all of the teachers at the next faculty meeting. The nurse sent for the youngster and, since the family had no private physician, she made arrangements for the parents to take him to the eye clinic of the University Hospital. John was given local treatment for the inflamed eye, but as he was also found to have a strongly positive blood test for syphilis, he was referred to the dermatology clinic for consultation. A diagnosis of late congenital syphilis with interstital keratitis was made, and treatment was started. After the acute eye symptoms subsided, the child was advised by the doctor to return to school, but to wear dark glasses for a short period of time. The nurse in the syphilis clinic arranged with the school nurse for the child's readmission into his classroom. The clinic physician sent a medical report to the school medical department giving the diagnosis and treatment, and suggested that John could be in school. He also recommended John for sight-saving class because of a temporary impairment to his vision, and asked that he return to the eye clinic every 10 days. As soon as the eye involvement had completely subsided he was to have a refraction and corrective glasses fitted. He should attend school, however, until his eye was ready for refraction. He had had adequate syphilis therapy with penicillin during the 2-week period he was out of school, and was advised to return to the clinic for monthly follow-up examinations.

When the report from the clinic came to the school nurse (there was no regular school physician at the school) she had another conference with John's teacher. As this school had no sight-saving class, arrangements were made for John to sit near the front of the room, where the light was good and where there was a minimum of glare. Plans were made for the other children in the class to take turns reading aloud some of the lessons to John in order to save his eyesight. The nurse visited the child's home and discussed his physical condition with the parents. They had both been examined at the syphilis clinic and had started on treatment for latent syphilis. The nurse in the clinic had explained John's case to them, and arrangements had been made for his 4-year-old sister to be examined. As the family could not afford to provide John with the glasses recommended, the nurse interested the Parent-Teachers' Association in providing them for him; of course, without revealing his diagnosis or identity. In her contacts with John the nurse noticed that he had some resentment toward his father and rather blamed him for infecting the mother. As both parents and child were registered at the hospital clinic, the nurse discussed this with the social worker, who arranged to give them some case-work assistance.

This case illustrates a problem whicl may be created by a child with congenita syphilis in the school. A misunderstanding on the part of the teachers can aris as far as the infectiousness of the diseas is concerned, particularly when there ar very noticeable signs and acute symptom as seen with this 14-year-old child. Th nurse is in a position to explain thes complications of the disease and also t reassure the teachers that any congenita syphilitic child of school age is not infectious to others. It is necessary fo school teachers to realize that the acut symptoms as seen in this child migh result in permanent damage, such as a impairment of vision and scarring of th cornea.

Another type of school problem, acquired infectious venereal disease, is see in the following example:

Margaret, aged 16 years, a Negro, i the ninth grade, was referred to the physician and nurse for her routine physica examination. At this time, she wa found to have a maculopapular rash i the palms of the hands and stated tha she had a discharge from her nipples an that her "stomach was swollen." Margaret was referred to a hospital clini for further study, where she was foun to be 3 months pregnant and to have earl infectious syphilis. She was admitte to the hospital for rapid treatment wit penicillin. The syphilis clinic sent a report of Margaret's clinical findings an the treatment to the school authoritie Because of the pregnancy, exclusion fro school for an indefinite period of time wa necessary. The public health nurse o interviewing Margaret found that two o her contacts were attending school. Sh worked with the nurse in the school i persuading these boys to be examined After several individual conferences wit the boys and their parents, arrangement were made for their examinations, on at the hospital clinic, and the other by hi family physician. One boy was foun to have early syphilis and was given intensive treatment. The other boy ha negative findings on his first examinatio but 2 weeks later developed a penile lesio that was darkfield-positive for Spirocheta pallida. He was then given penicillin therapy.

The contacts of the first boy with early syphilis were girls who were not attending school; and who, therefore, were referred to the health department for examination, diagnosis, and follow-up.

This case illustrates that the school nurse, with her knowledge of symptoms and epidemiology of syphilis, participated in case finding which resulted in early diagnosis and treatment of three cases of infectious syphilis, with the probable prevention of a syphilitic infection in the infant. This case also shows that through referral of patients, the relationship between agencies is strengthened and duplication of work is avoided.

Another venereal disease frequently found in the schools is gonorrhea. Since casual observation of the child either by the teacher or the nurse is less likely to reveal evidence of gonorrhea than of syphilis, the child must be depended upon to report symptoms to the nurse. Student conferences help to establish confidence so that when the school child feels that there is something wrong, he will turn to the nurse for assistance.

Gonorrhea is too often considered as unimportant because, with early diagnosis and present methods of treatment, it now can be cured in a very short time. However, with the school child there often are social and emotional complications with which the nurse must deal and which arise in her relationships with parents and children while securing medical care for the child.

Exclusion from school is not a significant factor in this disease as it is seldom necessary for the student with gonorrhea to be absent for more than 24 to 48 hours for treatment. With present knowledge of mode of transmission, a child is not kept out of school because he might pass on the infection through use of the toilet facilities. The theory that gonorrhea can be acquired from the toilet seat, even by preadolescent girls, has been pretty well exploded. Dr. P. S. Pelouze (*3*) has said: "If a gonorrhea patient is a menace to schoolmates it is through contacts more intimate than school hours afford and at times and places over which the school authorities have no direct supervision."

In dealing with these and many other problems which arise in various aspects of the venereal diseases among school-age children, the school nurse is making a contribution to the venereal disease control activities, and in her assistance in family life education in the school she is working toward a basic public health objective of preventing disease.

References

1. STOKES, J .H.: Some general considerations affecting present-day sex and sex education problems. Ven. Dis. Inform., 25: 197–203, 1944.
2. STOKES, J. H.; BEERMAN, H.; INGRAHAM, N. R., Jr.: Modern Clinical Syphilology. W B. Saunders Co., Philadelphia, 1945. Pg. 1146.
3. PELOUZE, P. S.: Gonorrhea in the Male and Female. W. B. Saunders Co., Philadelphia, 1944. Pg. 406.

Syphilis Morbidity Reporting by Private Physicians in the State of Florida

R. F. Sondag, M. D.,[1] and A. J. Sweeney[2]

In an effort to increase syphilis morbidity reporting by private physicians the following procedure was adopted, effective January 1, 1947, by the Florida State Board of Health.

A partially filled-out morbidity report was sent with each positive and doubtful serologic report returned by the State laboratories to private physicians. The following printed note of explanation served as a request to the physician to complete the morbidity report card if the patient was diagnosed as being syphilitic:

Florida State Board of Health Cooperating with United States Public Health Service

For your convenience, we are enclosing a VD case report card with each positive serological report. We suggest and ask that these be used as follows:

On a first positive serological finding, if diagnosis is adequately confirmed by history and physical findings, check proper stage of syphilis, attach your signature, and mail to Health Department; otherwise send an additional specimen for serological confirmation, preferably requesting a quantitative test. The higher the titer the greater the clinical significance of a positive finding.

If the second serological test is positive, check proper stage of syphilis and report the case *unless* the history and findings are clearly negative and you therefore suspect that the reported results are "biological false positives." In this case send a third specimen with the request on the reverse of this note completed and attached to the usual serological data slip.

You should have on hand a supply of addressed franked envelopes. Call your county health officer or write the Bureau of Preventable Diseases, State Board of Health, Jacksonville 1.

Duplicate reports were eliminated in the Central Registry.

Although the total syphilis case reports from private physicians increased considerably after the inauguration of this procedure, we still received a high percentage of case reports with stage of infection not stated. A memorandum was sent to all county health officers requesting their cooperation in obtaining complete diagnosis on morbidity reports from private physicians in their respective counties. All reports received without complete diagnosis indicated on them are now routinely returned to the county health departments for completion.

This procedure for increasing morbidity reporting from private physicians is proving to be of value in several ways. The physician has the serologic test performed for him by the State laboratory and receives the laboratory report, and in return he is requested to complete the accompanying morbidity report on all diagnosed cases. In most instances, this requires merely checking the stage of infection, and the signature of the reporting physician. In returning incomplete reports to the county health units, we are bringing about more frequent contacts between them and their local private physicians. When handled tactfully, we believe the method will develop closer cooperation between the two, which will in turn result in the improvement of the general health of the communities—an end that we are all working toward.

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[1] Director, Bureau of Preventable Diseases, Florida State Board of Health.

[2] Public Health Representative, U. S. Public Health Service.

A comparison of case reporting (chart 1 and table 1) by months for the period from January 1946 through June 1947 shows rather clearly the over-all increase in total syphilis cases reported by private physicians, and the decrease in the percentage of reported cases in which the stage of the disease was not indicated. The total syphilis cases reported during the first 6 months of 1947 are only 88 cases less than the total number reported for the entire year of 1946.

The average number of syphilis cases reported per month for 1946 was 457, as compared with the monthly average of 899 cases for the first 6 months of 1947. The percentage of incompletely diagnosed cases for the year 1946 was 25.4, as compared with 14.2 for the first 6 months of 1947.

A study of the syphilis admissions to clinics, hospitals, and other institutions shows no corresponding increase in admissions during this period, so that there seems no reason to suppose that any large part of the increase in the private physicians' cases was due to an increase in the syphilis incidence in the State of Florida, but was evidently due to our efforts to improve case reporting by the private physician.

Chart I.

SYPHILIS CASES REPORTED BY PRIVATE PHYSICANS IN THE STATE OF FLORIDA FOR THE PERIOD JANUARY 1946 THROUGH JUNE 1947. TOTAL NUMBER REPORTED AND NUMBER OF CASES WITH STAGE OF INFECTION NOT STATED

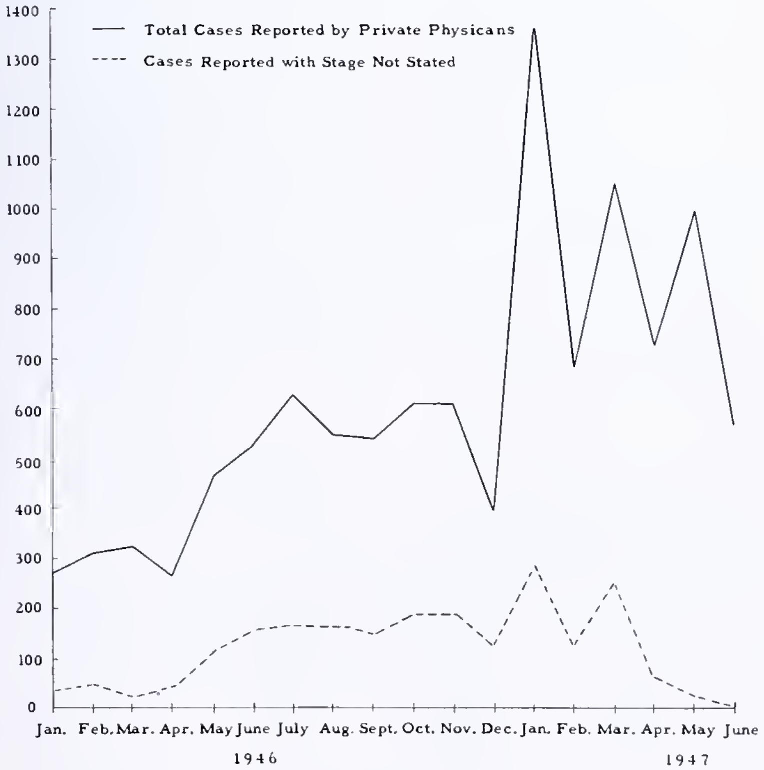

TABLE 1.—*Syphilis cases reported by private physicians by stage of infection and percentage distribution, in the State of Florida*

[January 1946—June 1947, inclusive]

Month	Total syphilis	Primary and secondary		Early latent		Other		Not stated	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
1946									
January	276	46	16.7	101	36.6	90	32.6	39	14.1
February	309	39	12.6	122	39.5	100	32.4	48	15.5
March	323	68	21.0	131	40.6	102	31.6	22	6.8
April	261	52	19.9	101	38.7	67	25.7	41	15.7
May	466	60	12.9	149	32.0	140	30.0	117	25.1
June	525	104	19.8	122	23.2	148	28.2	151	28.8
July	630	102	16.2	155	24.6	211	33.5	162	25.7
August	547	88	16.1	127	23.2	171	31.3	161	29.4
September	541	85	15.7	155	28.7	152	28.1	149	27.5
October	606	98	16.2	154	25.4	166	27.4	188	31.0
November	606	73	12.0	187	30.9	158	26.1	188	31.0
December	390	42	10.8	104	26.6	120	30.8	124	31.8
Total	5,480	857	15.6	1,608	29.3	1,625	29.7	1,390	25.4
1947									
January	1,378	245	17.8	374	27.1	467	33.9	292	21.2
February	680	133	19.6	201	29.6	220	32.3	126	18.5
March	1,051	197	18.7	304	28.9	295	28.1	255	24.3
April	722	188	26.0	232	32.1	242	33.5	60	8.3
May	991	248	25.0	379	38.2	338	34.1	26	2.6
June	570	158	27.7	187	32.8	217	38.1	8	1.4
Total	5,392	1,169	21.7	1,677	31.1	1,779	33.0	767	14.2

CURRENT LITERATURE

NOTE: Abstracts of any article listed below are available on request. In addition, abstracts of all articles concerned with venereal diseases or related subjects which have been published in the better known journals both here and abroad during the past 20 years are in the files. These are open to workers in the field. An asterisk (*) before a title indicates that the article is abstracted below.

AM. J. CLIN. PATH., BALTIMORE

A simple rapid method for assay of bactericidal and bacteriostatic agents. With technics for assay of penicillin, streptomycin, neoarsphenamine, mapharsen and other trivalent organic arsenicals. Edwin E. Osgood and Sarah M. Graham. 17: 93–107, Feb. 1947.

*The effect of lipids on Kahn antigen. I. Reduction of sensitivity by addition of lecithin. II. Increase of sensitivity by the addition of cephalin. Albert H. Wheeler, Ella M. Brandon and Reuben L. Kahn. 17: 117–142, Feb. 1947.

A noninfusion blood agar base for Neisseriae, pneumococci and streptococci. E. P. Casman. 17: 281–289, Apr. 1947.

Stabilized antigen suspension for use in the Kahn test. M. B. Kurtz and E. M. Hill. 17: 401–404, May 1947.

Nonproduction by penicillin of false positive reactions in Kahn and Kolmer tests. Ralph D. Turner. 17: 469–470, June 1947.

The effect of lipids on Kahn antigen. I. Reduction of sensitivity by addition of lecithin. II. Increase of sensitivity by the addition of cephalin. Albert H. Wheeler, Ella M. Brandon and Reuben L. Kahn. Am. J. Clin. Path., 17: 117–142, 1947.

In a discussion of the standardization of the Kahn antigen, data are presented indicating that lecithin added to Kahn antigen reduces the sensitivity, and that lecithin can be utilized in adjusting highly oversensitive antigens to standard requirements. The opposite effects of cephalin in correcting antigens are also discussed.

In the study presented, lecithin was found to have a marked effect on both the titer and the sensitivity of the Kahn antigen, reducing both the amount of salt solution necessary in the titer and the sensitivity of the antigen with syphilitic serums. An antigen showing no titration end point and outside the range of correction by usual methods may be so modified by lecithin as to give a desirable titer and correct sensitivity, the degree of reduction in sensitivity of the antigen being directly related to the concentration of lecithin added.

While oversensitive antigens corrected with lecithin were found to behave like standard antigens, not only in the Kahn standard test, but also in the differential temperature and triple quantitative technics of the verification test, lecithin added to undersensitive antigens altered neither the sensitivity nor the titer to any marked extent. Choline hydrochloride added to either oversensitive or undersensitive antigens behave similarly to but less effectively than lecithin. Thus, in practical application, oversensitive antigens can, by the addition of lecithin, be corrected to the sensitivity of standard Kahn antigen.

As to the correction of undersensitive antigens, the authors present data on the use of cephalin to increase the sensitivity of these antigens to the requirements of standard Kahn antigen. Cephalin was found to increase both the amount of salt solution necessary in the titer and the sensitivity in the syphilitic serums studied.

Am. J. Syph., Gonor. & Ven. Dis., St. Louis

Penicillin-resistant gonorrhea treated with streptomycin. Letter to the Editor. H. L. Holley. 31: 346, May 1947.

*Biologic false positive reactions in serologic tests for syphilis. I. Preparation and properties of serologically active serum globulin fractions obtained by fractional precipitation with ammonium sulfate. Hans Neurath, E. Volkin, J. O. Erickson, H. W. Craig, F. W. Putnam and G. R. Cooper. 31: 347–373, July 1947.

*Biologic false positive reactions in serologic tests for syphilis. II. Preparation and properties of serologically active serum euglobulin fractions obtained by isoelectric precipitation. J. O. Erickson, E. Volkin, H. W. Craig, G. R. Cooper and Hans Neurath. 31: 374–396, July 1947.

*Biologic false positive reactions in serologic tests for syphilis. III. Preparation and properties of serum protein fractions which inhibit biologic false positive reactions. E. Volkin, Hans Neurath, J. O. Erickson and H. W. Craig. 31: 397–412, July 1947.

*Biologic false positive reactions in serologic tests for syphilis. IV. Quantitative aspects of the inhibition phenomenon. E. Volkin, Hans Neurath and H. W. Craig. 31: 413–435, July 1947.

*Biologic false positive reactions in serologic tests for syphilis. V. A preliminary survey analysis with the euglobulin-inhibition method for the serologic differentiation between true and biologic false positive reactions. Hans Neurath, E. Volkin, H. W. Craig and J. O. Erickson. 31: 436–456, July 1947.

*Biologic false positive reactions in serologic tests for syphilis. VI. Partial purification of the antibodies of syphilitic human sera by adsorption on freshly precipitated calcium phosphate. F. W. Putnam, E. Volkin, H. W. Craig and Hans Neurath. 31: 457–468, July 1947.

Biologic false positive reactions in serologic tests for syphilis. I. Preparation and properties of serologically active serum globulin fractions obtained by fractional precipitation with ammonium sulfate. Hans Neurath, E. Volkin, J. O. Erickson, H. W. Craig, F. W. Putnam and G. R. Cooper. Am. J. Syph., Gonor. & Ven. Dis., 31: 347–373, 1947.

The authors present an extensive review of the problem of biologic false positive reactions in serologic tests for syphilis, including a discussion of the incidence of positive serologic tests in diseases other than syphilis and in apparently healthy individuals.

The present investigation was undertaken to determine whether the antibodies in serums from patients with syphilis differ in chemical or immunologic properties from those in serums giving biologic false positive reactions. These studies were considered necessary to establish an approximate pattern of the distribution of the serologic activity among the fractions obtained with a given set of experimental conditions. Two methods were employed: (1) fractional precipitation with graded amounts of ammonium sulfate; and (2) isoelectric precipitation at low salt concentrations. Quantitative serologic analyses were performed on serial dilutions of whole serums and their respective fractions with a group of tests including a complement fixation test and the following flocculation methods: Mazzini microscopic flocculation test; Kline microscopic diagnostic test; Kahn macroscopic quantitative test; and later, a slide test with a cardiolipin antigen. The samples were usually analyzed in serial twofold dilutions with a phosphate-saline buffer as diluent throughout.

Details are given of the results of the various methods used in this study, including serologic analysis of solutions of precipitates and of supernatants, consecutive fractional precipitations, and rapid fractionation. In serums from syphilitic patients, fractions GI and GII were found to be considerably more active serologically than fraction GIII, it being noted that the sum total of the serologic titer in the fractions was usually less than that of the parent serum. In 61 presumed biologic false positive serums, similar trends were generally observed, but in about 40 percent of these serums, the sum titer of the globulin fractions (GI and GII) was higher than the titer of the whole serum; this was seen in all patients in whom subsequent clinical evaluation definitely excluded syphilis. Control experiments on fractions derived from serums of normal individuals gave entirely negative results.

Electrophoretic analyses of whole serums and their component fractions failed to reveal any significant differences in component distribution among fractions derived from a syphilitic, biologic false positive, and normal human serum. Measurements taken of the susceptibility of the antibodies in syphilitic and biologic false positive serums in another phase of the study revealed that the temperature at which complete inactivation occurred was lower for the latter type of serum. Thus, with the Kline diagnostic flocculation test, the fractions of 10 of 11 known or presumed biologic false positive serums were completely inactivated after heating at 64° C. for 20 minutes, whereas only 1 of the 8 syphilitic fractions lost its titer under the same conditions.

Serologic analysis on globulin fractions is concluded to be a recommendable procedure, since a large amount of serologically inert serum protein is removed, and the concomitant increase in total titer observed in all known biologic false positive serums is considered to be of significance.

Biologic false positive reactions in serologic tests for syphilis. II. Preparation and properties of serologically active serum euglobulin fractions obtained by isoelectric precipitation. J. O. Erickson, E. Volkin, H. W. Craig, G. R. Cooper and Hans Neurath. Am. J. Syph., Gonor. & Ven. Dis., 31: 374–396, 1947.

In this paper the authors deal with the preparation and properties of serologically active euglobulin fractions isolated by isoelectric precipitation from syphilitic and biologic false positive serums. The influence of serum dilution, pH, and temperature on the serologic activity of the euglobulin fractions prepared from these serums is described in a discussion of the electrophoretic analyses performed on these fractions and on the whole serums in order to determine the distribution of the reactive antibodies among the various electrophoretic serum components.

Since evidence indicated that the reactive antibodies of syphilitic serums are associated with gamma globulins, conditions were investigated for the optimal precipitation of gamma euglobulin within its isoelectric range of about pH 6.1. For the adjustment of pH, two methods were employed: (1) partial saturation of the diluted serums with CO_2 gas; and (2) addition of dilutions of hydrochloric acid. The findings, in a study of a large number of proved syphilitic and biologic false positive serums, revealed that at least 50 percent of the total titer of the serum can be recovered in the euglobulin fraction, the recovery depending upon serum titer, and that the serologic activity of the euglobulin fractions derived from biologic false positive serums tends to be considerably higher than those of the whole serum. Since in all human serums giving positive serologic tests for syphilis, the euglobulin fraction contains a measurable amount of activity but only a relatively small amount of serum proteins, it is evidently highly suitab'e for purposes of quantitative serologic analysis.

Properties of the euglobulin fraction are discussed as to general appearance, protein concentration, and electrophoretic component distribution. The amount of protein precipitated in the euglobulin fraction is about 7 percent of the total serum proteins; no correlation was found between the protein content of the fraction and its serologic titer. The electrophoretic measurements performed on euglobulin fractions showed that about 50 percent of the protein is accounted for by gamma globulins and that about 13 percent of the total gamma globulin is precipitated with the euglobulin component.

The authors describe in detail the electrophoretic separation, into constituent components, of solutions of euglobulin fractions and of whole serums. It is concluded that in both syphilitic and biologic false positive human serums, the reactive antibodies are associated exclusively with serum gamma globulin, and that the fast-moving half of the gamma globulin is serologically more active per milligram of protein than either the whole gamma globulin or the more slowly moving half.

Biologic false positive reactions in serologic tests for syphilis. III. Preparation and properties of serum protein fractions which inhibit biologic false positive reactions. E. Volkin, Hans Neurath, J. O. Erickson and H. W. Craig. Am. J. Syph., Gonor. & Ven. Dis., 31: 397–412. 1947.

In this paper the authors discuss the previous findings that in a significant number of nonsyphilitic human serums the serologic activity of the isolated serum globulins is higher than that of the parent serum, and the assumption, in this connection, that the proteins in the globulin filtrate contain a component which masks in the whole serum the serologic activity of the constituent antibodies.

In experiments designed to elucidate the nature and properties of the inhibitory component, crude albumin fractions were prepared by removal of the globulin fractions GI, GII, and GIII by precipitation with ammonium sulfate, followed by recovery of part or all of the proteins remaining in the filtrate. These crude albumin fractions, prepared from a large series of human serums (43 syphilitic, 23 known or presumed biologic false positive, and 6 normal human serums), were compared with one another with respect to extent and specificity of inhibition. It was found that more than half of normal, biologic false positive, or syphilitic human serums contain in their crude albumin fraction a component which selectively inhibits the serologic activity of the globulins derived from biologic false positive human serums.

Fifteen human serums negative to serologic tests for syphilis were inactivated at 56° C. for 30 minutes in a study of the inhibitory activity of whole serums. One-half cubic centimeter of each serum was added to an equal volume of a serologically active euglobulin fraction of biologic false positive origin and the effect on titer was determined. No inhibitory activity could be detected. Again, serologically inactive globulin fractions GIII of low-titer syphilitic serums, as well as several GI and GII fractions of normal or serologically inactive biologic false positive human serums, were tested for inhibitory activity. Fractions GI and GII were found to be entirely inactive, but fractions GIII were sometimes active, and the crude albumin fraction of every serum which yielded an inhibitory GIII fraction was also inhibitory. Subfractionation of the crude albumin with ammonium sulfate did not yield a separation of the inhibitory factor from adjuvant proteins, nor did it convert an initially noninhibitory fraction into an active one.

One of the unique properties of the inhibitory fractions was found to be their marked heat stability; these fractions were even heat-coagulated and the coagulum redispersed without incurring any detectable loss in their inhibitory power. Other phases of the study disclosed that extraction of inhibitory fractions with fat solvents by methods described in detail by the authors resulted in some loss of inhibitory activity, and that the inhibitory factor may be completely removed by adsorption on cholesterol crystals.

It is concluded that the biologic specificity of the inhibitor occurs almost exclusively in human serums, no demonstration of comparable inhibitory factors having been made in analogous protein fractions of animal origin. It is assumed, moreover, that the inhibitor is equally distributed among syphilitic, biologic false positive, and normal human serums but that it affects specifically the serologic reaction of the biologic false positive type.

Biologic false positive reactions in serologic tests for syphilis. IV. Quantitative aspects of the inhibition phenomenon. E. Volkin, Hans Neurath and H. W Craig. Am. J. Syph., Gonor. & Ven. Dis., 31: 413–435, 1947.

In connection with the preparation and properties of certain heat-stable serum components which selectively inhibit the serologic reactions of globulin fractions derived from biologic false positive human serums, the authors describe experiments undertaken to investigate the quantitative aspects of the inhibition phenomenon and to clarify the mechanism of the reaction. Quantitative measurements were carried out to determine the influence of inhibitor concentration, antibody titer, and amount of antigen on the degree of selective inhibition of the flocculation reaction of the globulin fractions of biologic false positive serums.

Experiments are described which were designed to evaluate the quantitative relation between concentration of inhibitor and degree of inhibition. In the first series of measurements taken, serial twofold dilutions were made with buffer as diluent, whereas in the second series, inhibitor solutions were used as diluent, thereby maintaining a constant inhibitor concentration over the entire antibody dilution range. The results of the first series reveal the following trends in all inhibitory preparations so tested: (1) The biologic false positive reaction is completely inhibited above a threshold concentration of the inhibitor, whereas the syphilitic type of reaction is hardly affected; (2) inhibition is also partly directed toward the antibodies of the syphilitic type if a certain concentration range is exceeded; and (3) in subminimal concentrations of the inhibitors, inhibition of the biologic false positive reaction is incomplete.

In the second series of experiments, the use of euglobulin fractions of comparable titer, derived from biologic false positive and syphilitic human serums, gave results which afford an evaluation of the relation of antibody titer to degree of inhibition, as well as of the relation of inhibitor concentration to the degree of inhibition. The data show that above a minimal concentration, inhibition is selectively directed toward the antibodies of the biologic false positive type, selective inhibition appearing to be unrelated to antibody titer. It is noted that when cardiolipin is used, the addition of the inhibitor to globulin fractions of the syphilitic type slightly increases their titers.

Studies on the mechanism of inhibition revealed the degree of inhibition to be dependent upon inhibitor/antigen ratios, and that within a finite range, the degree of inhibition increases linearly with the logarithm of this ratio. Beyond this range, inhibition is complete.

Biologic false positive reactions in serologic tests for syphilis. V. A preliminary survey analysis with the euglobulin-inhibition method for the serologic differentiation between true and biologic false positive reactions. Hans Neurath, E. Volkin, H. W. Craig and J. O. Erickson. Am. J. Syph., Gonor. & Ven. Dis., 31: 436–456, 1947.

The object of the experiments described in this paper was to evaluate the euglobulin-inhibition test as a criterion for the serologic differentiation between true and biologic false positive reactions for syphilis. Data were analyzed with respect to inhibition of the serologic activity of the euglobulin fraction and increased serologic reactivity of the euglobulin fraction in comparison with the whole serum.

A biologic false positive reaction is said to be characterized by the complete inhibition of the serologic activity of the euglobulin solution in the presence of standardized amounts of the inhibitor, whereas, in the syphilitic reaction, the euglobulin solution and the euglobulin-inhibitor mixture have comparable ranges of serologic titer. True and biologic false positive reactions are differentiated by the following procedure, it is stated: (1) Preparation of the serologically active serum euglobulin fraction by the method of isoelectric precipitation; (2) addition of the heat-stable serum inhibitor to a split sample of the euglobulin solution; and (3) quantitative comparison of the serologic titer of the euglobulin solution with that of the euglobulin-inhibitor mixture.

This study was carried out on human serums of various types, with the following results: (1) In 409 known biologic false positive serums, of those with serologically positive euglobulin fractions, 92 percent gave a biologic false positive type of inhibition reaction while only 2 percent gave a syphilitic type of reaction, increased reactivity of the euglobulin fraction being observed in about 90 percent of serologically positive serums or fractions; (2) of a total of 386 known syphilitic serums, 95 percent of the serologically active globulin fractions gave a syphilitic type of inhibition reaction, 1.8 percent gave a biologically false positive type, and 3.2 percent gave inconclusive results, only 3 percent of the syphilitic serums showing an increased reactivity of their euglobulin fractions; (3) of 36 low-titer serums from untreated patients with early primary syphilis, 22 specimens had serologically positive whole serums or euglobulin fractions, of which approximately half gave a biologic false positive type of inhibition test, while about two-thirds gave a euglobulin fraction of increased reactivity; (4) of 116 presumed syphilitic serums, 90 percent gave a syphilitic type of inhibition reaction, in contrast to but 6 percent of reactions of the biologic false positive type; (5) in 50 serums from patients with syphiloid disease (pinta), 96 percent gave a syphilitic type of inhibition reaction, none yielding a euglobulin fraction of increased serologic activity, whereas in 9 serums from patients with yaws, a syphilitic type of inhibition reaction was obtained; (6) of 336 serums of undisclosed origin, each serologically positive specimen gave a syphilitic type of inhibition reaction, which was also consistently obtained when an initially high-titer syphilitic serum was diluted with normal human serum to varying levels of titer; (7) in 69 serums from apparently healthy individuals, 7 of which were serologically positive with titers of less than 1 unit, 17 of the isolated euglobulin fractions had measurable serologic activity and gave a biologic false positive type of inhibition test.

The present survey, according to the authors, has shown that the results of the euglobulin-inhibition tests parallel the diagnostic origin of the serums, about 95 percent of syphilitic human serums giving a syphilitic type of inhibition reaction and about 92 percent of the biologic false positive human serums giving that particular type of inhibition reaction. It is thought that with the use of a highly purified antigen, such as cardiolipin, the actual resolving power of the euglobulin-inhibition test would be probably close to 98 percent.

Biologic false positive reactions in serologic tests for syphilis. VI. Partial purification of the antibodies of syphilitic human sera by adsorption on freshly precipitated calcium phosphate. F. W. Putnam, E. Volkin, H. W. Craig and Hans Neurath. Am. J. Syph., Gonor. & Ven. Dis., 31: 457–468, 1947.

In a search for a satisfactory method of purification of the antibodies of syphilitic human serums, the authors present a discussion of Salk's method which depends upon preferential adsorption of serologically active or inactive serum globulins on calcium phosphate precipitate.

In a determination of the dependence of optimal serologic activity on various external factors, the influence of the following variables was determined: Calcium ion concentration, initial serum dilution, pH of adsorption, and temperature of adsorption. The procedure adopted for the partial purification of the antibodies is described in detail. When corrected to the same volume, the serologic titer of this fraction is more than 80 percent of that of the original syphilitic human serum although it contains but one-third to one-fourth of the total serum proteins. The supernatant solution of the calcium phosphate precipitate, after concentration to the original serum volume, contained 10 to 15 percent of the initial serum titer, it is stated.

Under the procedure described, 75 to 100 percent of the original serum titer was recovered in the isolated protein fraction, although calculations of titer/protein ratios showed that the product obtained from the calcium phosphate precipitate was only 3 to 4 times as active as the original serum. Electrophoretic analysis in the Tiselius apparatus was carried out, but the only significant change in the percent component distribution brought about by the adsorption procedure occurred in the relative amount of gamma globulin, the proportion of which was diminished in the precipitate and correspondingly increased in the supernatant solution. Although the solution obtained from the precipitate contained approximately only one-eighth of the total serum gamma globulins, its total protein content was only one-third of that of the whole serum.

Since the amount of gamma globulin carried down with the calcium phosphate precipitate constituted only a small fraction of the total serum gamma globulins, subfractionation of the adsorbed proteins with ammonium sulfate was carried out. This yielded a material of relatively high serologic activity per milligram protein which contained largely serum gamma globulin.

A complete resolution of the proteins into pure antibody and serologically inactive globulins appears unobtainable by the present methods, however, since the serologically active proteins of syphilitic human serums comprise but a small fraction of the total serum proteins, and considerable loss of serologic titer occurs concomitantly with subfractionation with ammonium sulfate. While the results of this investigation are believed to be of general significance, the authors therefore consider it to be unsuitable for routine serologic purposes.

Am. Practitioner, Philadelphia

Streptomycin in clinical practice; a review and case reports. Hugh J. Morgan and John S. Hunt. 1: 73–86, Oct. 1946.

Ann. Int. Med., Lancaster

Acute syphilitic nephrosis: report of a case. Albert Heyman and Charles E. Brown. 25: 728–731, Oct. 1946.

Penicillin in the treatment of syphilis. Editorial. 26 : 148–153, Jan. 1947.

Arch. Neurol. & Psychiat., Chicago

Psychiatric characteristics of patients with venereal disease. Morris W. Brody. Philadelphia Psychiatric Society. Mar. 8, 1946. 57 : 125–127, Jan. 1947.

Traumatic hematomyelia with unusual features. (Syphilitic thrombosis.) Aaron Bell. New York Neurological Society. Mar. 5, 1946. Society Transactions. 57 : 266–270, Feb. 1947.

Arch. de la Soc. Oft. Hisp.-Amer., Madrid

Treatment of gonococcal conjunctivitis neonatorum. 6 : 209–210, Feb. 1946. (Abstracted in Am. J. Ophth., Cincinnati, 30 : 792–793, June 1947.)

Arkansas Health Bull., Little Rock

V. D. Delta Plantation survey. 4 : 1, July 1947.

Baltimore Health News, Baltimore

Penicillin treatment is now used for ophthalmia neonatorum. 24 : 136, June 1947.

Bol. Ofic. san. panam., Washington

La sandidad en Chile. Nacianceno Romero y O. 26 : 289–304, Apr. 1947.

Editorial. XII Conferencia sanitaria Panamericana. (XII Pan American Sanitary Conference). 26 : 367–370, Apr. 1947.

Bol. Soc. cubana de pediat., Havana

Juvenile paresis : three cases. Martin Castellanos. 17 : 227, June 1945. (Abstracted in Am. J. Dis. Child., Chicago, 73 : 614, May 1947.)

Brit. J. Exper. Path., London

Effect of penicillin combined with neoarsphenamine on the lesions and serological titre of experimental syphilis. F. R. Selbie and S. Hebbert. 28 : 91–97, Apr. 1946.

Brit. J. Ven. Dis., London

Venereal diseases in the armed forces overseas (2). Douglas J. Campbell. 22 : 158–168, Dec. 1946.

Brit. M. J., London

Arsenicals in congenital syphilis. Any questions? No. 4506 : 705, May 17, 1947.

Bull. Johns Hopkins Hosp., Baltimore

The effect of the method of administration on the therapeutic efficacy of sodium penicillin in experimental syphilis. Harry Eagle, Harold J. Magnuson and Ralph Fleischman. 79 : 168–189, Aug. 1946.

Pathologic findings in a fatal case of disseminated granuloma inguinale with miliary bone and joint involvement. John Lyford, III, Robert W. Johnson, Jr. and Roger B. Scott. 79 : 349–357, Nov. 1946.

The problem of identification of oral spirochetes and description of a precipitin test for their serological differentiation. Lucille B. Robinson and Ruth Wichelhausen. 79 : 436–450, Dec. 1946.

Canad. J. Pub. Health, Toronto

More health for Canada. Brooke Claxton. 37 : 234–238, June 1946.

Public health nursing in the control of syphilis and gonorrhea. 3. Specific types of investigation. Pearl Stiver. 37 : 249–250, June 1946.

Clin. Med., Waukegan

Biological false positive reactions in serological tests for syphilis. C. D. Marple. 54 : 213, July 1947.

Colorado State Bd. of Health Bull., Denver

The interpretation of the quantitative Kahn. Paul D. Pedersen. 11 : 7–8, July 1947.

New services of the central laboratory. Marjorie Van Vranken. 11 : 14–15, July 1947.

Deutsche med. Wchnschr., Leipzig

Clinical experiences with penicillin treatment of gonorrhea. Altmann & Huf. 71 : 17–20, 178–180, Sept. 13, 1946.

Hawaii M. J., Honolulu

What does the spinal fluid show? Editorials. 6 : 331, May–June 1947.

Health News, Albany

Venereal diseases reported. New York State exclusive of New York City. 24 : 141, Aug. 18, 1947.

Illinois M. J., Oak Park

Low back pain. (Inc. syphilis of bone.) Samuel L. Turek. 91 : 300–303, June 1947.

Indian J. Ophth., India

Interstitial keratitis. H. J. Hathi. 7 : 6–9, Jan. 1946. (Abstracted in Am. J. Ophth., Cincinnati, 30 : 647, May 1947.)

Indian J. Ven. Dis., Bombay

Arsenical encephalopathy. C. P. Cherian. 13 : 17–19, Apr.–June 1947.

Penicillin in syphilis. A review of the factors concerned. S. Behr. 13 : 19–23, Apr.–June 1947.

Common cases seen in the v. d. department. Evelyn Gourlay. 13 23–26, Apr.–June 1947.

Vestnik Venerologii i Dermatologii, Moscow

Isolation of culture of Spirocheta pallida from syphilis patients. N. M. Ovchinnikov. 1 : 36–42, 1946.

STATISTICS

Syphilis and Gonorrhea Cases Reported for the First Time in States and Territories, Third and Fourth Quarters, 1947

[Known military cases are excluded]

Area	Syphilis															Gonorrhea		
	Primary and secondary			Early latent			Late and late latent			Congenital			Not stated					
	January–March	April–June	Trend ratio	January–March	April–June	Trend ratio	January–March	April–June	Trend ratio	January–March	April–June	Trend ratio	January–March	April–June	Trend ratio	January–March	April–June	Trend ratio
District 1—Total	4,276	3,803	0.89	4,718	4,495	0.95	7,951	7,920	1.00	607	486	0.80	431	465	1.08	10,477	11,064	1.06
Connecticut	107	92	.86	69	101	1.46	210	175	.83	15	19	(a)	63	65	1.03	283	279	.99
Delaware	96	74	.77	84	98	1.17	38	40	1.05	8	4	(a)	23	35	1.52	93	88	.95
Maine	144	105	.73	28	24	.86	56	56	1.00	8	12	(a)	8	8	(a)	177	135	.76
Massachusetts	306	218	.71	119	96	.81	448	448	1.00	59	49	.83	0	0	--------	937	846	.90
New Hampshire	26	24	.92	20	10	.50	43	42	.98	11	6	(a)	7	5	(a)	69	82	1.19
New Jersey	508	419	.82	801	819	1.02	931	900	.97	67	40	.60	16	15	(a)	1,462	1,476	1.01
New York	1,793	1,556	.87	1,868	1,836	.98	4,692	4,693	1.00	220	205	.93	98	83	.85	[b] 5,131	[b] 5,398	1.05
New York City	1,392	1,270	.91	1,663	1,668	1.00	3,590	3,659	1.02	157	140	.89	35	14	.40	4,934	5,153	1.04
Pennsylvania	1,185	1,237	1.04	1,692	1,470	.87	1,380	1,408	1.02	193	139	.72	178	204	1.15	[c] 2,072	[c] 2,494	1.20
Philadelphia [d]	555	526	.95	1,039	818	.79	742	657	.89	90	44	.49	93	85	.91	1,556	1,823	1.17
Pittsburgh [d]	188	182	.97	156	150	.96	205	217	1.06	22	14	.64	0	0	--------	172	271	1.58
Rhode Island	67	43	.64	32	33	1.03	145	134	.92	23	6	.26	33	41	1.24	142	182	1.28
Vermont	44	35	.80	5	8	(a)	8	24	(a)	3	6	(a)	5	9	(a)	111	84	.76
District 2—Total	4,474	4,346	.97	3,952	4,424	1.12	2,652	2,795	1.05	367	445	1.21	462	295	.64	14,964	16,141	1.08
District of Columbia	299	351	1.17	339	337	.99	243	287	1.18	27	64	2.37	42	4	.10	3,181	2,987	.94
Maryland	666	526	.79	440	476	1.08	629	558	.89	54	46	.85	390	254	.65	1,625	1,932	1.19
Baltimore	555	404	.73	371	374	1.01	554	475	.86	40	17	.42	87	38	.44	1,162	1,475	1.27
North Carolina	1,128	1,062	.94	831	825	.99	263	297	1.13	87	94	1.08	0	0	--------	3,314	3,473	1.05
South Carolina	719	839	1.17	1,003	1,212	1.21	454	402	.89	69	60	.87	0	0	--------	2,645	2,813	1.06
Virginia	737	1,052	1.43	781	1,213	1.55	541	789	1.46	60	122	2.03	30	37	1.23	2,689	3,443	1.28
West Virginia	925	516	.56	558	361	.65	522	462	.88	70	59	.84	0	0	--------	1,510	1,493	.99
District 3—Total	4,873	4,581	.94	4,442	5,108	1.15	6,272	6,989	1.11	544	598	1.10	854	764	.89	15,807	15,583	.99
Illinois	1,452	1,378	.95	1,556	1,584	1.02	1,775	2,054	1.16	126	138	1.10	0	0	--------	8,114	7,427	.92
Chicago	912	980	1.07	1,231	1,198	.97	1,187	1,403	1.18	77	91	1.18	0	0	--------	6,657	6,009	.90
Indiana	563	521	.93	305	353	1.16	620	761	1.23	65	80	1.23	211	86	.41	446	576	1.29
Kentucky	693	645	.93	377	407	1.08	522	498	.95	47	60	.95	148	216	1.46	1,973	2,135	1.08
Michigan	891	737	.83	896	919	1.03	1,695	1,566	.92	136	121	.89	492	461	.94	2,796	2,530	.90
Ohio	1,117	1,182	1.06	1,128	1,717	1.52	1,405	1,844	1.31	137	182	1.33	0	0	--------	2,172	2,584	1.19
Wisconsin	157	118	.75	180	128	.71	255	266	1.04	33	17	.52	3	1	(a)	306	331	1.08
District 4—Total	7,222	6,823	.94	8,258	8,225	1.00	6,628	7,238	1.09	843	922	1.09	2,250	2,013	.89	29,017	27,917	.96
Alabama	879	878	1.00	1,383	1,607	1.16	1,759	1,979	1.12	124	110	.89	1,090	1,511	1.39	2,162	2,403	1.11
Arkansas	709	838	1.18	1,143	1,044	.91	764	871	1.14	113	140	1.24	0	6	(a)	1,877	1,728	.92

Florida	1,259	1,032	.82	1,873	1,504	.80	1,658	1,232	.74	133	82	.62	793	101	.13	5,357	4,721	.88
Georgia	776	1,060	1.37	672	861	1.28	427	896	2.10	49	109	2.22	0	1	(a)	3,641	4,167	1.14
Louisiana	1,162	925	.80	850	678	.80	487	556	1.14	153	139	.91	362	370	1.02	3,417	3,293	.96
Mississippi	1,364	1,226	.90	1,203	1,425	1.18	756	930	1.23	184	278	1.51	0	0	--------	6,086	5,220	.86
Tennessee	1,073	864	.81	1,134	1,106	.98	777	774	1.00	87	64	.74	5	24	(a)	6,477	6,385	.99
District 5—Total	2,133	1,777	.83	2,209	1,857	.84	3,276	3,068	.94	244	242	.99	299	300	1.00	10,655	9,712	.91
Alaska	15	14	(a)	12	13	(a)	4	10	(a)	0	0	--------	1	2	(a)	181	151	.83
Arizona	192	155	.81	109	88	.81	98	117	1.19	10	19	(a)	0	0	--------	419	394	.94
California	1,602	1,288	.80	1,853	1,570	.85	2,726	2,471	.91	200	185	.92	177	158	.89	8,424	7,619	.90
Hawaii	17	18	(a)	28	22	.79	83	55	.66	7	12	(a)	3	7	(a)	159	163	1.03
Nevada	48	60	1.25	0	0	--------	41	90	2.20	2	3	(a)	44	48	1.09	121	132	1.09
Oregon	129	92	.71	82	55	.67	159	146	.92	13	14	(a)	35	47	1.34	453	458	1.01
Washington	130	150	1.15	125	109	.87	165	179	1.08	12	9	(a)	39	38	.97	898	795	.89
District 6—Total	238	277	1.16	987	1,077	1.09	468	484	1.03	513	463	.90	0	23	(a)	1,550	2,170	1.40
Puerto Rico	233	262	1.12	971	1,055	1.09	463	476	1.03	513	461	.90	0	23	(a)	1,505	2,093	1.39
Virgin Islands	5	15	(a)	16	22	(a)	5	8	(a)	0	2	(a)	0	0	--------	45	77	1.71
District 7—Total	1,505	1,384	.92	1,225	1,189	.97	1,438	1,658	1.15	150	151	1.01	151	199	1.32	3,575	3,379	.95
Iowa	174	173	.99	92	131	1.42	76	196	2.58	13	17	(a)	24	26	1.08	397	351	.88
Kansas	197	199	1.01	157	147	.94	257	272	1.06	24	35	1.46	13	0	(a)	668	608	.91
Minnesota	127	132	1.04	51	55	1.08	151	195	1.29	12	10	(a)	9	3	(a)	383	379	.99
Missouri	793	670	.84	754	661	.88	764	737	.96	85	66	.78	36	51	1.42	1,668	1,662	1.00
St. Louis	582	397	.68	577	451	.78	565	496	.88	67	39	.58	0	0	--------	1,076	1,045	.97
Nebraska	114	129	1.13	97	140	1.44	137	215	1.57	11	15	(a)	59	113	1.92	254	200	.79
North Dakota	49	28	.57	19	8	(a)	22	16	.73	0	6	(a)	6	5	(a)	81	54	.67
South Dakota	51	53	1.04	55	47	.85	31	27	.87	5	2	(a)	4	1	(a)	124	125	1.01
District 8—Total	346	339	.98	247	235	.95	281	449	1.60	44	38	.86	52	51	.98	879	846	.96
Colorado	164	154	.94	125	109	.87	152	191	1.26	17	16	(a)	0	0	--------	526	483	.92
Idaho	58	47	.81	45	59	1.31	54	130	2.41	14	7	(a)	6	10	(a)	157	141	.90
Montana	38	79	2.08	29	28	.97	19	20	(a)	5	8	(a)	41	32	.78	82	89	1.09
Utah	35	38	1.09	23	25	1.09	33	85	2.58	5	5	(a)	0	0	--------	81	98	1.21
Wyoming	51	21	.41	25	14	.56	23	23	1.00	3	2	(a)	5	9	(a)	33	35	1.06
District 9—Total	1,474	1,263	.86	1,978	1,850	.94	1,564	1,421	.91	275	265	.96	1,496	1,082	.72	8,897	8,541	.96
New Mexico	112	105	.94	92	143	1.55	98	111	1.13	17	27	(a)	1	1	(a)	359	329	.92
Oklahoma	499	322	.65	593	403	.68	940	731	.78	118	74	.63	213	93	.44	2,279	2,075	.91
Texas	863	836	.97	1,293	1,304	1.01	526	579	1.10	140	164	1.17	1,282	988	.77	6,259	6,137	.98
Canal Zone	18	8	(a)	14	28	(a)	25	60	2.40	2	2	(a)	3	10	(a)	252	236	.94
Total continental United States	26,271	24,284	.92	26,989	27,348	1.01	29,975	31,473	1.05	3,067	3,135	1.02	5,991	5,160	.86	93,931	92,869	.99
Total United States Territories	26,559	24,601	.93	28,030	28,488	1.02	30,555	32,082	1.05	3,589	3,612	1.01	5,998	5,202	.87	96,073	95,589	.99

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[a] Ratio not calculated when base is less than 20.

[b] Up-State morbidity estimated on the basis of clinic and in-patient care facilities admissions.

[c] Pennsylvania morbidity except Pittsburgh and Philadelphia estimated on the basis of clinic and rapid treatment center admissions outside of these cities.

[d] Data from VM-820.

Source: Form 8958-B USPHS—Venereal Disease Division, Office of Statistics, 10/1/47 (ML–BLH) mjm.

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